JPRS-UST-86-018

29 JULY 1986

USSR Report

SCIENCE AND TECHNOLOGY POLICY

FBIS FOREIGN BROADCAST INFORMATION SERVICE

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service (NTIS), Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semimonthly by the NTIS, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

JPRS-UST-86-018

29 JULY 1986

USSR REPORT

SCIENCE AND TECHNOLOGY POLICY

CONTENTS

/9987

FACILITIES AND MANPOWER

TEMPORARY SCIENTIFIC, TECHNICAL LABORATORIES SHOW PROMISE

Vilnius SOVETSKAYA LITVA in Russian 19 Feb 86 p 4

[Unattributed article: "The Laboratories Are Temporary, the Success Is Permanent"; first paragraph is SOVETSKAYA LITVA introduction]

[Text] The large-scale experiment, which has concluded in the system of the USSR Academy of Sciences, made it possible to speed up significantly the introduction of scientific developments in the practice of the national economy. It envisaged the establishment at eight institutes of Moscow, Leningrad, Sverdlovsk, Gorkiy, and Vladivostok of so-called temporary scientific and technical laboratories, which are called upon to become the shortest "bridge" between large-scale science and industry. Recently the Collegium of the USSR State Committee for Science and Technology evaluated the results of the experiment--it was decided to make the gained experience accessible to all academic institutes and ministries of the country, which are interested in it.

Within the experiment, they reported to a TASS correspondent in the USSR State Committee for Science and Technology, at the scientific institutions the efforts of scientists, engineers, and workers were combined for 3 years for the solution of specific national economic problems. The members of such collectives assumed the obligation in addition to their own work to develop during this time for one sector or another new instruments or materials and to develop advanced technological processes. An additional payment in the amount of 30 percent of the salary was envisaged for the combining of occupations and the increase of the amount of work.

The research of the institutes, at which these collectives were set up, served as the basis of the activity of such temporary laboratories. Here the level of the elaboration of the problem, its urgency, and the possibilities of the extensive use of the innovations were taken into account.

The success surpassed all expectations. For example, the Institute of Radio Engineering and Electronics undertook the development of mockups of devices for the increase of the efficiency of computers. If this work had been performed by the traditional means, 10 years would have been spent on it. Owing to the new form of the organization of labor the cycle of research, which was conducted jointly with sectorial scientific research institutes,

lasted only 2.5 years. In 1983 the economic impact from the introduction of the innovation came to more than 9 million rubles. Now, with the increase of the series production of the devices, which do not have, incidentally, analogues either in our country or abroad, the impact is even greater.

The metallurgists of the Cherepovets Combine will be able to produce about 100,000 tons of additional rolled products owing to the introduction of the laser technology of the reconditioning and surface hardening of the rollers of the 2000 rolling mill. Staff members of the temporary laboratory of the Institute of High Temperatures of the USSR Academy of Sciences developed it. Carbon dioxide, which is obtained from the fumes and other waste products of metallurgical production, is used for the operation of the lasers. The introduction of laser technology is affording prospects for its use for the hardening of rails and the improvement of the quality of electrical steels.

On the basis of the temporary laboratory of the Institute of Metal Physics of the Ural Scientific Center of the USSR Academy of Sciences it was possible to develop a set of means of the nondestructive testing of the welds of arc welded pipes. As a result all seven plants, at which the flaw detectors of the Ural workers were introduced, discontinued the purchase of similar imported equipment. The scientists of the Institute of General and Inorganic Chemistry imeni N.S. Kurnakov developed in accordance with an order of the Elektron Production Association a new technology of producing electronic instruments.

Such results show that the temporary scientific and technical laboratories have earned the right to life. The shortening of the time of the introduction of valuable developments by several years is turning for the state into an enormous profit. The task is for the new form of the integration of science and production to receive extensive recognition.

7807
CSO: 1814/164

FACILITIES AND MANPOWER

EXPERIMENTAL, PRODUCTION BASE OF SHATURA LASER CENTER OPENED

Moscow LENINSKOYE ZNAMYA in Russian 22 Feb 86 p 1

[Article by LENINSKOYE ZNAMYA special correspondent A. Yuskovets: "Favorable Forecasts"; first paragraph is LENINSKOYE ZNAMYA introduction]

[Text] Yesterday the grand opening of the scientific experimental and production technological base of the Scientific Research Center for Technological Lasers of the USSR Academy of Sciences took place in Shatura.

It is good to arrive on the eve of an event. Especially an event of such a scale. In the bustle of final preparations it is possible to see very clearly what has already been done and what still lies ahead.

For the managers, of course, such visits of journalists are burdensome. But neither Galym Abilsiitovich Abilsiitov, director of the center, nor Valeriy Andreyevich Ulyanov, scientific secretary of the Scientific Research Center for Laser Technology, said a word of reproach to me for the fact that I was diverting people from work.

And after a few minutes I got the chance to see how a laser beam easily cuts steel sheet half a centimeter thick. And not simply cuts. A blank, which has a very, very complex shape and, moreover, was made with very high precision, appears in a matter of seconds. Looking at this work, I thought about how much my knowledge of lasers, which was obtained at the institute, has become obsolete.

N.G. Basov and A.M. Prokhorov, now academicians, as well as American scientist Townes invented lasers (more precisely, masers, which operate in the radiowave range). For this they also received the Nobel Prize. At first lasers were regarded as very expensive instruments for scientific research. But then they evaluated their application in the most different sectors of industry for cutting, welding, and face-hardening and began to introduce them extensively, and quantum-mechanical oscillators literally caused a revolution. And now they are being used in communications and industry, in medicine and agriculture, in space research and household radio engineering.

It would be quite difficult to obtain the part, which the laser cut out before my eyes, by the traditional means, by stamping. For several days would be

spent just on the production of a die of such a shape. While here there are 4-5 hours of work of the design draftsman with an automatic plotter, then the composing of a program for the computer, and the part is ready in a matter of seconds. Moreover, it is possible to duplicate it an infinite number of times.

At another stand a multichannel laser carried out the face-hardening of valves for engines of the AvtoZIL Association. As a result of this operation the wear resistance of the valves is increased by several fold. The center has been cooperating with the Moscow Motor Vehicle Works imeni I.A. Likhachev for more than a year.

In one of the laboratories they showed me another of the developments--a little robot, which fits on a desk, holding in its "hand" the necessary part, with filigree precision places its necessary sections under the laser beam. The development of a mathematical program for the computer that controls the robot was under way.

These are only three episodes from the life of the center, which was built according to the latest word of construction engineering. But lasers in industry and for agricultural equipment can have tens of the most different useful applications. Or let us take medicine. We are no longer amazed when we see at an exhibition (in particular, the Health Care-85 Exhibition) a laser scalpel for especially delicate operations and a device for laser acupuncture, in which the beam replaced the traditional needle. And it is no longer an event to read a report on how the laser beam healed a stomach ulcer.

Vice President of the USSR Academy of Sciences Ye.P. Velikhov attended the opening of the center. I will cite an excerpt from the interview which Yevgeniy Pavlovich gave a few days earlier to the newspaper LENINSKAYA SHATURA, while evaluating the development of the center:

"The extensive introduction of laser equipment and technology in industry is envisaged by the draft of the Basic Directions. The works of the center should become the basic unit in scientific and technical progress."

It is possible to add to these words that the Scientific Research Center for Technological Lasers is the main organization of the interdepartmental scientific and technical complex for technological lasers. It not only develops and produces in series new technological lasers, but also coordinates the efforts of many sectors on the development of the element base of laser equipment, develops and produces prototypes of it, and performs research work.

They are also thinking at the center about the future, which for the present appears as follows: the third section of the center will be completed, a scientific microrayon, which the associates and guests of the center will settle, will be built. The center, which is located on the shore of beautiful Lake Svyatoye, will be reliably connected with the city by a good road with a mandatory bicycle path. While the proximity of the lake suggests the idea to build a vacation base here.

And there is another look at the future: at the center I saw a completely computerized classroom. It turns out that here boys and girls not only from Shatura, but also from adjacent rayons are learning to interact with computers. A second such classroom, which is equipped with personal computers, is in operation at City School No 4. And, as specialists believe, this is one of the best computer classrooms in the oblast.

So that the forecasts for the future are most optimistic.

7807
CSO: 1814/164

MINSK DESIGN BUREAU OF LEATHER GOODS, ACCESSORIES INDUSTRY

Minsk SOVETSKAYA BELORUSSIYA in Russian 18 Jan 86 p 2

[Article by L. Danilevich and I. Mostkov under the rubric "Scientific and Technical Progress: Problems and Opinions": "Not Born Yesterday..."; first two paragraphs are SOVETSKAYA BELORUSSIYA introduction]

[Text] The Minsk Oblast Committee of the People's Control after a careful check examined at the end of last year the question "On the Unsatisfactory Work of the Minsk Experimental Design and Technological Bureau of the Leather Goods and Accessories Industry of the USSR Ministry of Light Industry on the Increase of the Efficiency of Developments and the Speeding Up of Their Introduction in Production." The wording itself already attests to the serious shortcomings in the activity of the experimental design and technological bureau (the director is Ye.D. Stasevich), which was criticized at the Minsk Oblast Party Conference.

This criticism is important, it seems, not only for the improvement of this experimental design and technological bureau: many faults allowed here to one degree or another are characteristic of a number of other sectorial "brain centers" and cast light on many serious problems of the assurance of scientific and technical progress.

We did not make a slip of the tongue, having called the experimental design and technological bureau a "brain center." The bureau is the main organization (that is, one which to a certain degree determines the basic principles, directions, and level of developments) for the mechanization of difficult and labor-consuming processes in the leather goods and accessories industry. In other words, precisely this experimental design and technological bureau is called upon to revolutionize production processes in its own sector and to ensure the increase of its economic indicators and, what is the main thing, the quality, cost, and competitive ability of products of the broadest demand.

At the experimental design and technological bureau there are more than 180 scientists alone. The force, as you see, is considerable. How is it being used?

The number of received inventor's certificates and sold licenses is the basic indicator of the novelty of developments. There were none of the latter at all in the practice of this experimental design and technological bureau. The number of inventor's certificates is less than 20 a year (22 in the most "productive" year of 1982). More than half of the themes of the past year (32 of 58) could not even aspire to the protection of novelty by inventor's certificates. Was it not in such conservative solutions that the initiative "Each Development to the Level of an Invention," which was once popular among researchers of Belorussia, faded away? Might it be that now it is especially important to resurrect this movement of genuine innovators?

The annual economic impact, which is obtained in the national economy from the introduction of inventions, is another most important indicator of scientific activity. It was the greatest at the experimental design and technological bureau in 1984--188,000 rubles (in 9 months of 1985--74,600 rubles). Let us say frankly that the indicators are modest. People may disagree with us: do not compare the experimental design and technological bureau with higher educational institutions and academic institutes--there the level of personnel and science is different. We agree, but precisely for this reason the question, which applies, perhaps, to many plant and sectorial scientific and design subdivisions, arose: But do they need to operate according to the principle "not born yesterday"?

Prominent scientists, who work at higher educational institutions and the Academy of Sciences, while striving to introduce the results of their research in practice, frequently are forced to spend time, efforts, and assets on design and technological developments, which are not characteristic of them. They are striving for an alliance with sectorial scientific subdivisions, but the latter do not have enough truly profound scientific ideas, which revolutionize production.

Hence there also follows in many cases the optimum formula of the connection of science and production: "the academic institute (higher educational institution)--the scientific research institute (experimental design and technological bureau) of the sector--the enterprise--mass introduction (in the sector)." But such a "trifle" as the aspiration for the cooperation of sectorial subdivisions is needed for the creation of this chain, which is advantageous for all its links and, what is the main thing, for the state. But what do they need this cooperation for? Especially as the responsibility for the end results of work will immediately increase, any disruption will go beyond "their apartment." In short, there are troubles beyond count. But here there is a sickly, poor thing, but it is one's own....

Our conclusions are, of course, of a problem-raising nature and apply by no means only to light industry. But they were suggested precisely by the results of the work of the experimental design and technological bureau of this sector. At this bureau, which, as was already stated, is called upon to head the work on the mechanization of production, there are obviously not enough ideas and scope for the solution of serious problems. As the check revealed, "during the years of the 11th Five-Year Plan not one plan of the retooling or the complete mechanization and automation of the enterprise as a whole was drafted." How can they take the sector in hand there, if they

cannot completely mechanize the enterprise! Here the role of a patcher of individual holes is left to the "main," if it can be called that, experimental design and technological bureau.

With what all the same does the experimental design and technological bureau deal? What is included in its 58 themes of last year, 1985? Let us return to the report on the results of the check: "The development of mechanized flow lines is reflected extensively in the thematic plan...." Very well, even if it is not complete mechanization. But flow lines are already something. And here is a detail which cancels what was said: "However, the actual content of the work does not correspond to the named formulas of the themes."

Will a wagon fly, if you call it an airplane? Now production is not going to change because in the name of one theme or another it is a question of flow lines, while the matter reduces to individual operations.

One of the 22 themes, which are connected with the production of various suitcases, contemplated the development of a flow line on the basis of advanced technology. But "a mountain gave birth to a mouse"; the development was confined to an explanatory note and several drawings. Many other completed themes also do not differ greatly in their scientific and technical level from this "line." Not by chance do such developments find only isolated introductions or else do not find application at all.

Hence the low economic effectiveness. In 4 years of the past five-year plan such an important indicator as the obtained profit per ruble of expenditures became more than twofold worse. A good third of the developments are not yielding an economic impact at all. It has been calculated that annually nearly 90 workers of the experimental design and technological bureau, while receiving more than 160,000 rubles in wages, are yielding the state not half a kopeck. It is possible to go on with such facts. But it is more important to show another feature, which is not that rare at scientific institutions: how failures are turned into successes. Not in practice, but in reports. Did not the assertion that not the ability to do, but the ability to report is important, originate here?

As is known, the index "N" (novelty), for which they levy an additional charge, is on some goods. Not the principle "if you want a novelty, you have to pay for it," but the fact that 30 percent of the economic efficiency, which is shown in the reports of the experimental design and technological bureau, was obtained due to this "N" for which the workers of this bureau did not lift a finger, arouses objection.

Another (also not too original) method of the "skillful" report is little, as if entirely trivial adjustments to the method of calculating the economic efficiency. And here is the result: the economic impact, which was obtained from the introduction of the already mentioned "flow line based on advanced technology" (which, strange as it may seem, was confirmed by the "kind uncles" from the Minsk Leather Goods Factory imeni Kuybyshev), according to the report came to more than 51,000 rubles. But it was actually 0.0....

There is another characteristic feature which attests to the level of the activity of the bureau. Having its own pilot works, it turns over to enterprises not bare ideas and drawings, but the fruits of its creative work--finished equipment. But at times it turns them over in such a form, with such a concentration of design flaws and production defects, that the enterprises have to display genuine enthusiasm for months, or else years in order to make sense of the novelty of "advanced equipment."

The Grodno Glove Factory, having spent 2 years and considerable capital on such operational development, is inclined to reject altogether such miracle equipment and, as was stated in the official documents, "not to perform work on the elimination of the noted shortcomings."

Something similar is happening with the equipment which was developed under the scientific supervision of G.M. Otopkov, deputy director of the experimental design and technological bureau, for the Leningrad Metal Fittings Production Association. They had been developing it since 1978, in 1982 produced it, and in 1984 tested it at the experimental design and technological bureau, sent it to Leningrad, and received it back for operational development. Last year they sent it again to the consumer. Now this equipment is gathering dust in a warehouse in the city on the Neva, and the production workers (we quote their letter) "have appealed to the RSFSR Ministry of Light Industry and the USSR Ministry of Light Industry to consider the question of the advisability of using the finished and unservicable line." In this way years passed in vain, in this way tens of thousands of state rubles vanished.

Recently, at the beginning of this year, the Politburo of the CPSU Central Committee proposed to speed up the retooling of the enterprises of the system of the USSR Ministry of Light Industry and to ensure the introduction of advanced technological processes. These requirements directly apply to the scientific research, design, and technological services of the sector. Including, of course, the Minsk Experimental Design and Technological Bureau. Is it capable of and up to them?

If the point was that the commission had discovered some shortcomings, the criticism had helped to eliminate them, and the inspired collective had begun to act in a new way.... Alas, everything is not that way.

At the very beginning of the 11th Five-Year Plan nearly the same or similar disruptions in the work of this experimental design and technological bureau were already discovered by the Minsk City Committee of the People's Control. At that time the managers of the bureau and its departments were punished and were obliged to correct the situation. Then, in 1984, they were criticized in accordance with the results of a departmental check. And why is that? It turned out that the work not only had not improved, but with respect to a number of indicators had worsened. In particular, the average length of studies had increased sharply, by nearly a year, although many of them are very minor with respect to scope and theme.

We mentioned precisely this indicator not by chance: How is it possible to influence the retooling of the sector, if developments become obsolete before

they begin to be of benefit? Moreover, a number of these developments are also being conceived at the level of yesterday, and get to enterprises obviously obsolete. Is this not why introduction, as a rule, is confined to single specimens?

I want to speak frankly about the fact that the need has arisen for the decisive reorganization of the activity of the experimental design and technological bureau. Not only the equipment, the style of work, and the level of demands, but (perhaps, first of all) the very frame of mind of the people. Judging from how the managers of the collective (including party buro secretary V.S. Mukhin) give the criticism a hostile reception and how they attempt to refute it, it can be safely said: so far they have simply not understood the present role of the bureau in technical progress. No at all serious attempts to become bearers of the latest technical ideas, without which the real intensification of production is impossible, are visible. Especially in light industry, which is not keeping pace with changeable fashion and the tastes of customers, who demand the frequent and rapid succession of items and their higher and higher qualities and are very sensitive to price. Hence the particular need for flexible automated systems, complete automation, and robotics, to which the bureau so far has not risen.

The solution of the problem of the human factor, in our opinion, is becoming urgent. Suffice it to say that in the bureau there are only four candidates of sciences (including the director and his deputy), while half of the designers of the second and third category do not have a higher education at all. Even the deputy chief of one of the departments is a technician by education. And what can be said about such a collection of scientists: a specialist in construction machines is supervising the development of an automatic machine for the cutting of a metal zipper, a geographer is preparing the job and wage rates classification manual, while a forestry specialist is busy with the problems of the organization of accessories enterprises. It would be, as they say, funny, if it were not so sad....

These facts are lamentable not only in themselves, but also because they attest to the obviously minimized demands on the level of the work being performed. Not only the managers of the bureau, but also the managers of the sector are guilty of this. Indeed, it is not much trouble to note that, as the recent check showed, "it is impossible to group the overwhelming majority of operations with the scientific theme," in accordance with which they are being performed.

It would probably not be worth analyzing in such detail the results in reality of the routine check which was made by the organs of the People's Control, if it were not for the importance of the problems which stem from it. One of them is the role and place of sectorial design and technological bureaus in the retooling and intensification of production. Therefore, I want to return to the beginning of the article, in order to emphasize again: most often basic scientific development is beyond the power of these bureaus, which in many ways determine the technical policy of the sector. And, apparently, this is not their purpose. On the other hand, the bureaus should hardly replace plant engineers and designers, when solving special technical problems. It seems that the main content of their activity lies in the uniting of the

sector with large-scale science and in embodying advanced scientific achievements in design and technological innovations which are capable of ensuring rapid technical progress. Hence the most important condition of the success of the experimental design and technological bureau--close contact with academic scientific collectives, scientific collectives of higher educational institutions, and other large scientific collectives, contact which today is obviously weak.

7807
CSO: 1814/162

UDC 006.063:65:371

SYSTEM OF VUZ MANAGEMENT BASED ON STANDARDIZATION

Moscow STANDARTY I KACHESTVO in Russian No 4, Apr 86 pp 41-44

[Article by Candidates of Technical Sciences M.P. Asmayev and A.S. Levinson and Candidate of Economic Sciences G.Ya. Rubin, Krasnodar Polytechnical Institute: "An Integrated System of the Management of a Higher Educational Institution on the Basis of Standardization"]

[Text] To execute the decree of the CPSU Central Committee and the USSR Council of Ministers "On the Further Development of the Higher School and the Increase of the Quality of the Training of Specialists" at higher educational institutions work on the improvement of the activity of their subdivisions, which is aimed at the increase of the quality of the training of specialists, has been launched.

The successful operation of a modern higher educational institution is not possible without the development of an efficient system of management. The management of the multilevel and diverse activity of a higher educational institution presumes the implementation of not only the global, but also a large number of the interconnected elementary loops of management at various levels: the individual student, the student group, the chair, the faculty, the department. In this connection the development of an efficient system of management, which has as its goal to increase the qualitative indicators of the work of the higher educational institution as a result of the algorithmization of individual, frequently repetitive routine operations, the standardization of the methods of evaluating the controlled object, the methods of influence, and the forms of documents, as well as the optimization of the paper flow, is possible in case of the use of the systems approach and one of its basic principles--the principle of comprehensiveness. In this direction the use of the methods of standardization with the solution of a number of problems in the VUZ Automated Control System, as well as the experience of the leading higher educational institutions [1] and industrial enterprises of the country [2, 3] seems promising.

The special purpose of the higher educational institution in the system of the national economy is the training, education, and graduation of young specialists and the performance of research. Therefore, by comprehensive standardization here one should understand the standardization of the qualitative indicators of the final "product" of the higher educational

institution--the ideological and professional level of the future specialists and the results of research, as well as all the interconnected associated elements of the educational and scientific process (the organization and conducting of the educational and training process and the performance of research; ideological, personnel, information, and material support; the study and application by instructors and students of the ideas and methods of standardization).

On this basis, at the Krasnodar Order of Labor Red Banner Polytechnical Institute work was organized on the improvement of the educational, scientific research, and administrative activity of the corresponding subdivisions for the purpose of increasing the quality of the training of specialists. In this connection in 1982 the development of an integrated system of the increase of the efficiency and quality of the work (KS PEKR) of the institute on the basis of standardization was begun.

The systematic and planned increase of the professional, ideological, and political level of the specialists being trained by the institute in conformity with the needs of the national economy of the country by the constant perfection of the educational and training process, the improvement of the system of the ideological and political training of students, the increase of the skills of instructors, and the perfection of the work of the services and subdivisions of the institute was specified as the goal of the integrated system of the increase of the efficiency and quality of work.

The structure of the integrated system of the increase of the efficiency and quality of work was created on the basis of the organizational structure of the institute and with allowance made for the basic directions of its activity (see the diagram). As is evident from the diagram, three special-purpose and five support subsystems are a part of the integrated system of the increase of the efficiency and quality of work.

The management of the institute within the integrated system is carried out by the implementation of the functions of management with respect to the subsystems. The skills descriptions of specialties, the job instructions of the associates of the institute, documents of superior organizations, and standards of the enterprise (standards of the higher educational institution) were taken as the organizational procedural, standard technical, and legal basis of the integrated system of the increase of the efficiency and quality of work.

The activity of the institute in all directions was analyzed at the initial stage of development. This made it possible to formulate the basic provisions of the system, which were included in the basic standard, and to determine the list of standards which regulate individual types of educational, scientific research, and administrative activity. As an example the functions of management, the basic operations by functions, and the standards of the enterprise with respect to the subsystem "The Meeting of the Need of the National Economy for Specialist" are cited in Table 1. The results of the analysis became the basis for the elaboration of the technical assignment for the system.

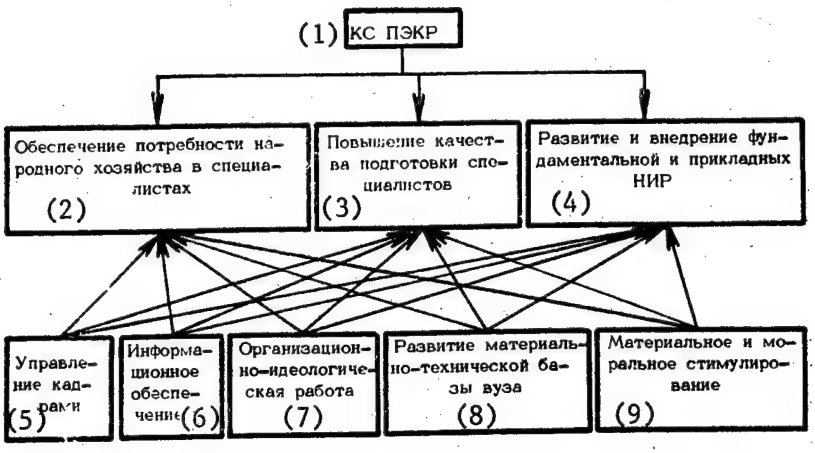
Table 1

Functions of management	Basic operations by functions	Subdivision responsible for the fulfillment of the function	Standards of enterprise, which regulate the fulfillment of the function
Planning, organization, and monitoring of vocational guidance work among school, working, and rural youth	Drafting of plans of vocational guidance work. Organization of agitation brigades of staff members of the institute and upperclassmen. Organization of Days of Open Doors. Compiling of standard forms of vocational guidance (texts of standard lectures, interviews, and so forth). Evaluation of the quality and effectiveness of vocational guidance. Organization of monitoring of vocational guidance.	Deans' offices, chairs	Vocational guidance. Procedure of planning, organization, and monitoring
Planning, organization, and monitoring of training of school graduates	Planning of the work of the preparatory department. Organization of the work of evening and correspondence preparatory courses. Organization of physical mathematical and chemical schools and subject contests of school children. Organization of preparatory work as a voluntary service directly at industrial enterprises, schools. Organization of workers' faculty. Evaluation of the quality and effectiveness of preparatory work on enrollment in a higher educational institution. Monitoring of work on the preparation of school graduates.	Preparatory department	Preparation of school graduates for enrollment in a higher educational institution. Procedure of planning, organization, and monitoring

[Table continued on following page]

Table 1 (continued)

Functions of management	Basic operations by functions	Subdivision responsible for the fulfillment of the function	Standards of enterprise, which regulate the fulfillment of the function
Planning and organization of admission of students to the first year	Planning of the work of the admissions commission. Formation of the technical personnel of the admissions commission and the subject examinations commissions. Organization of interviews with the students admitted to the first year. Evaluation of the quality and effectiveness of the work of the admissions commission.	Admissions commission	Admission of students to a higher educational institution. Procedure of planning, organization, and monitoring
Planning, organization, and monitoring of the assignment of young specialists	Planning of the assignment of young specialists. Organization of the assignment of young specialists. Assurance of the fulfillment of the state plans of the assignment of young specialists. Organization of contact with graduates and enterprises which are the place of assignment. Organization of the probationary work of young specialists. Monitoring of the assignment of young specialists.	Personnel department, deans' offices	The assignment of young specialists. Procedure of planning, organization, and monitoring



Key:

1. Integrated system of the increase of the efficiency and quality of work
2. Meeting of the need of the national economy for specialists
3. Increase of the quality of the training of specialists
4. Development and introduction of basic and applied research
5. Management of personnel
6. Information supply
7. Organizational and ideological work
8. Development of material and technical base of the higher educational institution
9. Material and moral stimulation

All these operations were headed by the coordination council (KS) of the institute and its working organ--the coordinating working group (KRG). The rector, the prorectors for educational and scientific work and of the administrative management section, as well as the leading instructors and managers of the structural subdivisions of the institute were members of the coordinating council.

The functional duties of the members of the coordinating council were broken down in the following manner:

--the rector of the institute--the chairman of the coordinating council;

--the prorector for educational work--the manager of the subsystems "The Meeting of the Need of the National Economy for Specialists" and "The Increase of the Quality of the Training of Specialists," as well as the coordinating working group;

--the prorector for scientific work--the manager of the subsystem "The Development and Introduction of Basic and Applied Research."

The five support subsystems were attached to the managers of the structural subdivisions in conformity with the functional duties.

In accordance with an order of the rector, the development of the integrated system of the increase of the quality and efficiency of work became a state budget theme, while the developers of the standards of the enterprise became the performers. The procedural supervision, coordination, and monitoring of the elaboration of the standards, as well as the appraisal of all the materials with respect to the system were entrusted to the coordinating working group, the norm control, registration, and formation of the collection of standards and the monitoring of their introduction and observance were assigned to the department of standardization and metrology.

The integrated system of the increase of the efficiency and quality of work encompasses 23 functions of management, which will be regulated by 57 standards of the enterprise. The list of them is cited in Table 2.

Table 2

Name of subsystem	Name of standard
	General standards:
	Integrated system of the increase of the efficiency and quality of work. The basic provisions
	Procedure of the elaboration and introduction of standards of the enterprise
Meeting of the need of the national economy for specialists	Training of school graduates for enrollment in a higher educational institution. Procedure of planning, organization, and monitoring
	Admission of students to a higher educational institution. Procedure of planning, organization, and monitoring
	Vocational guidance. Procedure of planning, organization, and monitoring
Increase of the quality of training of specialists	Working program of the educational subject. General requirements
	Educational methods complex of the subject. General requirements
	Assignment of young specialists. Procedure of planning, organization, and monitoring
	Practical production work of students. Procedure of organization and monitoring
	Instruction equipment. Organization of use in the educational process
	Graduation designing. Procedure of organization and monitoring
	Intersession checking of the current progress and the fulfillment of the study plan by students
	Educational workload. Procedural of distribution, calculation, formation

[Table continued on following page]

Table 2 (continued)

Name of subsystem	Name of standard
	Curators of the educational groups. Procedure of the planning and organization of work
	Graduation projects (works). General requirements and rules of drawing up
	Educational research work of students. Procedure of planning, organization, and monitoring
	Course designing. General requirements
	Checking of attendance of educational classes
	Educational methods complex of the specialty. General requirements
	Study and working study plan of the specialty. General requirements
	Auditorium classes. General requirements
	Instruction equipment. General demands on drawing up educational didactic materials
	Independent work of students. Procedure of planning, organization, and monitoring
	Intersession period. General requirements
	Schedule of educational classes. Procedure of drawing up
	Budget of time of students. Methods of determination
	Quantitative evaluation of the level of quality of the training of specialists. Methods of determination
Development and introduction of basic and applied research	Business trips connected with the performance of research. General requirements
	Contract for the transfer of the results of research. General requirements.
	Extracurricular research of students. Procedure of planning, organization, and monitoring
	Procedure of the planning and passage of applications for inventions
	State budget research. Procedure of planning, organization, and monitoring
	Procedure of the enlistment of performers in the fulfillment of economic contractual work and payment for it
	Economic contractual work. Procedure of planning, organization, and monitoring
	Procedure of introducing the results of research in the national economy
	Patent and license support of research. Procedure of organization
	Metrological support of research. Procedure of organization
	Report of research. Procedure of drawing up, registration, and norm control

[Table continued on following page]

Table 2 (continued)

Name of subsystem	Name of standard
Management of personnel	Increase of the scientific teaching skills of instructors. Procedure of planning, organization, and monitoring
	Increase of the ideological and political level of instructors. Procedure of planning, organization, and monitoring
	Manning of chairs with science teachers. Procedure of planning and organization
	Certification of instructors. Procedure of organization
Information support	Documentation of the chair (dean's office). Demands on composition, storage, and use
	Norm control of documentation
	Manuscripts submitted for publication within the higher educational institution. Procedure of submitting, making up, and publishing
	Organizational administrative documentation. Procedure of drafting, making up, and publication
Organizational and ideological work	Practical public political work of students. Procedure of organization, conducting, and monitoring
	Faculty of public occupations. Procedure of organization, the planning of work, and monitoring
	Labor training of students. Procedure of organization, conducting, and monitoring
	Legal training of students. Procedure of organization, conducting, and monitoring
	Sports and health improvement work. Procedure of planning, organization, and monitoring
Development of the material and technical base of the higher educational institution	Material and technical supply of the educational process and research. Procedure of organization
	Material and technical supply of the daily life and relaxation of staff members. Procedure of organization
	Procedure of the organization of the monitoring of the receipt, accounting, and expenditure of physical assets
Moral and material stimulation	Moral and material stimulation of the increase of the quality of the training of specialists
	Socialist competition. Procedure of planning, organization, and tallying of the results

Already in the process of developing the system means of its improvement in all directions were outlined and the list of standards with respect to the subsystems was changed. At present 34 standards have been elaborated and introduced at the institute, of them 19 are on the organization of the management of the educational process. The elaboration of standards for all the special-purpose subsystems has practically been completed. The results of

the functioning of the already introduced standards make it possible to draw several preliminary conclusions about the effectiveness of the use of the methods of standardization in the educational process and in case of the conducting of research.

In conformity with the basic provisions of the theory of standardization the sources of the economic or other efficiency of standards of the organizational and technical plan, and the standards at the higher educational institution are precisely such, are:

--the rationalization of the paper flow in the individual subdivisions and at the higher educational institution as a whole by the interconnection of the requirements of the individual standards;

--the standardization of the educational methods and other documents at the chairs and in the educational department, the elimination of redundant documents; the shortening of the time for the drawing up of documents and the monitoring of their use;

--the interconnection of the requirements of the educational and training process and the scientific process;

--the increase of the quality of instruction and training by the introduction of the most advanced methods with the aid of standards.

Moreover, the process of the elaboration, introduction, and use of standards plays a large educational and organizational role in the process of instruction and contributes to the training of future engineers for work with standards.

It is possible to show more specifically the effectiveness of individual standards on the basis of the following examples.

The standard "The Calculation of the Educational Workload" made it possible to eliminate the losses of time for consultations and specifications when making calculations and to increase the demandingness on the content of documents.

The standard "The Working Program of the Subject" establishes uniform demands on the basic procedural document of the educational process. Its introduction made it incumbent to review all over again the programs being compiled and to identify the obsolete sections in them, to specify the breakdown of time for the study of individual themes, and to develop lists of recommended literature.

The standard "The Work of the Curator of Academic Groups" clearly defines the tasks of the curator and aids the instructor in this difficult and responsible organizational work.

The standard "The Checking of Current Progress" ensures a uniform form of the control documents (ledgers and others) and common dates of certification for all the faculties. Its introduction increased the demandingness and responsibility of instructors.

Thus, the development at the higher educational institution of a standardized base for the regulation of the demands on routine, often repetitive elements of management at all levels leads to a saving of time on the fulfillment of management operations, to the decrease of the number of documents, and to the optimization of the paper flow.

BIBLIOGRAPHY

1. Ogryzkov, V.M., Lukyantsev, V.P., Petushkov, V.V., Gorbunov, B.I., and Grebenkov, V.I., "The Work on Standardization at the Higher Educational Institutions of the RSFSR Ministry of Higher and Secondary Specialized Education and the Prospects of Its Development," STANDARTY I KACHESTVO, No 2, 1983, pp 3-6.

2. All-Union State Standard 24525.0-80--All-Union State Standard 24525.5-81. Management of the Production Association and Industrial Enterprise.

3. "Krasnodarskaya kompleksnaya sistema povysheniya effektivnosti proizvodstva. Osnovy postroyeniya k obespecheniyu funktsionirovaniya" [The Krasnodar Integrated System of the Increase of Production Efficiency. The Principles of Organization for the Assurance of Operation], Krasnodar, Krasnodarskoye knizhnoye izdatelstvo, 1983, 92 pages.

7807
CSO: 1814/170

COMPUTERS, ENGINEERING PSYCHOLOGY, HYBRID INTELLIGENCE

Moscow PRAVDA in Russian 24 Jan 86 p 2

[Article by M. Vasin under the rubric "The Horizons of Science": "Hybrid Intelligence"]

[Text] It is a pity that this romantic and mischievous holiday, when, showered with generous wishes, you feel like a decorated New Year's tree, when you are not surprised at miracles and know that the most whimsical fantasy is merely a reality ready to be realized, has passed. During the cheerful New Year's period you understand our young great grandmothers, who, for the sake of seeing their intended through a magic crystal ball, "threw their shoe, having removed it from their foot, over the gate," asked the name of a passer-by, poured wax into water, and looked into a hole in the ice. On such days you will also not be surprised at the fantastic developments of engineering psychologists, which are aimed at the solution of problems of scientific and technical progress.

But the New Year's tree begins to lose its needles, and you remember that the romanticism of omens, the mysteriousness of prophetic dreams, and the fantasy of visions were superseded long ago by dry rationality and mathematical calculation. Whereas during the times of Homer they guessed by the weather the will of Zeus, now, by recording every gust of wind and every drop of rain, they are attempting to predict the weather. For everyone knows that the more we know about the present and past, the more accurately we can judge the future.

True, this indisputable statement in recent times has begun to put in a spot the specialists who deal with the prediction of the future. For an example I will cite the same meteorology. The situation here, in the words of Professor D. Pospelov, a well-known specialist in the area of the elaboration of problems of artificial intelligence, is characterized by the witty admission of meteorologists themselves: today, they say, it is possible with absolute precision to forecast the weather for tomorrow, but a month of work is needed for this. The available computer hardware is not capable of coping with the flows of information which is being received from weather stations and weather satellites.

If such a conversation took place on New Year's, it would be appropriate to recall that, according to the calculations of scientists, several hundred species of animals and plants forecast quite accurately the weather, including for the future. So why not use these mysterious abilities of the representatives of living nature to have a premonition about tomorrow's rain? Call biologists to the Hydrometeorological Center and let them load into the computer the predictions of birds and flowers. You look, and the forecast will be more accurate.

However, sober rationality interrupts these unfounded dreams of mine: meteorologists and biologists speak, after all, different languages, use incompatible techniques and approaches in work, while the computer hardware of some specialists simply will not understand others. So that all this is impracticable.

"Why is it impracticable?" Professor V.F. Venda, chief of an engineering psychology laboratory, says in amazement, apparently having forgotten that the New Year's period has passed. "The modern computer is quite capable of not only associating with specialists of different types, but also helping them to understand each other and to elaborate joint solutions."

But before speaking about this in detail, the professor proposed for some reason to make a short digression into the history of the development of computer technology. And it turned out that initially the computer was used in a rigid mode: it received a specific assignment--it engaged in the matter--it yielded the result. But this was not always convenient, and gradually they became to change over to the interactive mode. However, a dialogue with the aid of a keyboard did not satisfy the "interlocutors." They took the following step: they got the idea to indicate the necessary place on the display screen with a light pen. The computer began to understand both more and more correctly. Now an attempt is also being made to jump entirely over the language barrier.

The conclusion: computer technology is steadfastly holding to the course of closer and closer contacts with man, greater and greater mutual understanding, and active collaboration. But if this is so, it is possible, without resorting to any of the mentioned techniques of guessing, to predict that extensive mutual understanding and, what is the main thing, mutual assistance will be the next stage in the relations of the partners.

The idea of the counter adaptation of man and computer and of their continuous adjustment to each other, which was advanced at the Institute of Psychology of the USSR Academy of Sciences, entailed a number of interesting consequences. First of all V.F. Venda and his colleagues undertook to ascertain what specific assistance the partners need. The analysis showed that the obtaining of an answer to this question is also the greatest bottleneck now in the organization of the collaboration of man and computer.

The point is that although the computer for the present is not very communicative, it expresses very unambiguously complaints to its partner: it is necessary, it says, to adapt to the latest equipment, but if you do not know how, do not set to work. As to the operator, he, as a rule, cannot say

precisely what difficulties he experiences when solving one problem or another. If he knew this, he would easily formulate his wishes concerning the improvement of the computer or its "behavior."

A game with one goal post is the result: the computer demands of man to adapt to it so that it would operate, while man does not know what to demand of the computer and its developers so that both it and he would work better.

Therefore, engineering psychologists proposed to teach the computer, by using indirect questions and special techniques, to find out from its animated partner, with what difficulties he is faced while interacting with it. This will make it possible to give the operator precisely the assistance which he especially needs now: the computer will begin to adapt to man and to give information in his favorite form and sequence, at the proper pace. Gradually the computer will get to know its partner so well that it will acquire the ability to analyze his actions at the console and to note deviations from the usual norm--the result of fatigue, illness. Of course, in this case it will increase the assistance. If the capacity of a person for work all the same declines, the computer will direct his attention to the present occupational inconsistency and will prescribe that he use the standby version of actions, which is at its disposal. Otherwise the computer will have to remove the operator from work, having assumed control and having shut off the console....

Subsequent research, which was aimed at the development of an information-computer center which automatically adapts to man, convinced psychologists that it is easy for the modern computer to adapt to a 2d, 3d, 10th operator and, when "meeting" each of them, to use the most effective tactic which was developed at one time.

This circumstance was of substantial importance for the development of the next, entire "New Year's" project.

Here is what is meant. With the emergence of unprecedentedly difficult problems, which it is necessary to solve very quickly, the method called "brainstorming" became widespread. In conformity with its rules a large group of specialists, who have if only a remote bearing on the problem being discussed, gets together. The chairman announces the problem. And those present begin to voice ideas and suggestions. Up to the most incredible ones. All this is recorded.

Everyone suggests whatever he likes. It is possible to develop, supplement, and change what was said by the previous speaker. It is not permitted only to argue, object, and refute. The reckoning is that the spurt ahead of one person, as a rule, leads many, that even an absurd idea can become a prompt for a brilliant solution. But if worst comes to worst, among the hundreds of expressed ideas it is easy to find if only several sensible ones, on which it is worth working later on.

In our world, which is becoming complicated, there are also many such large-scale complex problems (management, technological, scientific research, planning and design), the elaboration of which it is necessary to begin, carry out, and complete collectively. The making of forecasts--scientific and

technical, economic, ecological, and so on--is also grouped with such problems. (It is not ruled out, V.F. Venda smiles, that it will also be useful for meteorologists to resort to the knowledge of zoologists, botanists, microbiologists, and solar physicists.) For only by knowing the problem from many angles and examining simultaneously its many projections is it possible to count on the selection of the best method of its solution.

So the task of combining into a single whole specialists of different types, with different experience and temperaments faced engineering psychologists.

Only computer technology is capable of doing this.

However, the ability of the computer to adapt to each participant in collective labor and the ability to translate instantaneously for them information into an intelligible "language" (drawings, charts, formulas, tables, texts, oral speech, mimic flowsheets, movie frames) proved to be inadequate in order to organize the creative cooperation of the computer and many operators and to help them merge into a unified--hybrid--intelligence. Years of research were required before the foundations of the theory and the methods of the construction of viable and efficient systems of hybrid intelligence were developed.

According to this research, the structure and activity of such man-machine creative complexes should satisfy a large number of conditions and principles. In particular:

--the final solution, which has been obtained by hybrid intelligence, cannot be a variance with the reliable information which if only one member of the collective has;

--the computer gives its colleagues the information, advice, and instructions, which are at its disposal, and independently examines routine problems; the solution of difficult problems is assigned to people;

--it is advisable to enlist in the work in man-machine systems the best specialists in the given field, but the number of participants should not exceed the optimum level;

--in the process of the activity of hybrid intelligence a flexible hierarchy is mandatory: at each stage of the making of a decision whoever has the most important information performs the function of the leader....

As Professor Venda maintains, it is practicable already today to implement the plan of hybrid intelligence. The computing equipment, which is necessary for this, in principle is available. The engineering psychology questions of the adaptation of the computer to each participant and to the entire decision group as a whole have been elaborated. The idea has been checked experimentally in the laboratory. The conditions of the occurrence of the synchronous resonance effect, when the sum of the intelligences works productively in one rhythm, in one mode, in one direction, have been determined.

Individual elements of hybrid intelligence are being used in the system of the centralized automatic remote control of the movement of urban transport of Moscow. They will find much greater application on a similar plan which is being elaborated jointly with staff members of the Kharkov Affiliate of the All-Union Scientific Research Institute of Industrial Design.

Will someone else, perhaps, take a fancy to the idea of hybrid intelligence? No, psychologists have not taken to throwing shoes over the gate or asking the name of a person they meet--since 1975 they have been offering their idea to recognized institutions, have been publishing articles and books, and have been speaking at conferences and congresses. But for the present the intended has not been found: he does not believe that all this is in earnest.

And, I must admit, for a long time I did not believe very much. For even prophetic dreams are somehow more customary....

Meanwhile scientists both of our country (first of all, in the Information Science, Computer Technology, and Automation Development and the Computer Center of the USSR Academy of Sciences) and abroad are dealing successfully with similar problems of the development of large-scale man-machine systems--the scientific and technical aspect of the matter. It is interesting that after Professor Venda in 1977 delivered at a conference of the American Society of Human Factors a report on Soviet research in the area of hybrid intelligence, requests to speak on this theme followed from many universities and scientific centers of the United States, then Japan, the FRG, and other countries. While 2 months ago he delivered another report in Sweden--this time on the invitation of a number of universities and the State Inspectorate for Atomic Energy....

When you find out about all this, you want very much to look ahead in a New Year's way--what phenomenal power will the alliance of electronic intelligence and human intelligences have, if it is possible to involve in joint creative activity the most advanced computer technology and the best specialists of the region, sector, and, perhaps, the entire planet? It is probably possible to imagine this only if it is possible to get rid of the inertia of thinking and customary systems and approaches.

7807
CSO: 1814/164

AUTOMATION AND INFORMATION POLICY

DEVELOPMENT, INTRODUCTION OF AUTOMATION EQUIPMENT, SYSTEMS

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 28 Jan 86 p 3

[Article by D. Mukanov, director of the Karaganda Special Planning and Design Bureau of the Chermetavtomatika Scientific Production Association, winner of the Kazakh SSR State Prize: "The Pace of Automation. How to Speed Up the Introduction of Scientific and Technical Achievements in Production"]

[Text] Substantial plans for the five-year plan on the renovation and retooling of production on the basis of modern computers, completely mechanized and automated lines, and robotic complexes are being drafted these days at enterprises and in associations and sectors. But these plans will become a reality, if the conditions of the development, introduction, and operation of automatic equipment are changed and the barriers, which are hindering the development in the republic of new priority scientific and technical directions, are eliminated. A serious turn in the direction of the urgent problems of automation is needed.

The need for an automated control system and the amount of work on its development are so great that their individual designing is absolutely impermissible. For the present a regular automated control system is being developed as if all over again for each facility, which is leading to great manpower and material expenditures. Here the average time of the development of one system, as a rule, comes to several years, while its cost comes to 2 million rubles. It is time to change over to the individual methods of the development and introduction of automated control systems, having united the efforts of the scientists, designers, programmers, and specialists in computer maintenance, who work in one region.

The need for the development of the pilot experimental and design base is not a new question. Much is being written about it in the press, and first of all by scientists themselves. But in past years the number of these bases in practice has not increased, it is possible to count them literally on one's fingers.

The task of the accelerated development of pilot experimental bases of institutes and enterprises for the purpose of the extensive introduction in the national economy of the achievements of science and technology is posed in the draft of the Basic Directions. The vital necessity of experimental

production consists in making the scientific idea accessible as soon as possible to practice, in embodying it in metal and in practice, and in organizing in a short time the duplication of innovations. It is possible to trace this on the basis of the work experience of the Karaganda Special Planning and Design Bureau (OPKB) of the Chermetavtomatika Scientific Production Association.

The special planning and design bureau is an integrated organization and includes along with scientific departments design and planning subdivisions and an experimental works. As the main organization, it carries out the scientific and technical supervision of the pilot plant and the specialized start-up and adjustment administration, which were established on the basis of the subdivisions of the special planning and design bureau. Such a structure makes it possible to perform the complete cycle of operations--from research and designing to the small-series production and servicing of automation equipment and systems. The average time of the development at the special planning and design bureau of innovations does not exceed 20 months, while for the country as a whole this time comes to 4-5 years. Reliable and high-precision equipment is being delivered by us not only to metallurgical enterprises of the country, but also abroad.

In short, scientific research institutes and design bureaus can do much themselves on the development and strengthening of their own experimental and design base. However, they will not manage without the assistance of industrial enterprises. This assistance will come only when the themes of the institute are closely coordinated with the needs of the region. Enterprises will begin to give the necessary material and economic support, if scientists and designers develop the needed, fundamentally new equipment and advanced technology. Moreover, on a real-time scale and precisely for the given enterprises. A way out of the formed situation is seen in the establishment of specialized start-up and adjustment organizations for the reliable establishment at the works of "intelligent" equipment and the rendering of assistance to the users in its maintenance.

Enormous reserves of the acceleration of the work on automation lie in production associations and industrial enterprises. They have substantial material and manpower resources, which enables them in case of the proper interest to give development to the so-called plant sector of science. The central plant laboratories of mechanization and automation, the shops of control and measuring instruments and automatic equipment, and the planning and design bureaus can become a reliable connecting link between science and production. For the collectives of the scientific research institutes and design bureaus, which have been converted to the new system of planning and economic stimulation, the profit, which forms at the enterprise which introduced the new equipment, is the source of bonus funds. Consequently, they are directly interested in the growth of the amount of this profit and the drawing near of the time of its formation. For the collectives of the pilot plants, which produce models of new equipment, and start-up and adjustment organizations, which have also been converted to the new system, the profit, which formed "within" the enterprise due to the decrease of the production cost, continues to remain the source of the material incentive. This is leading to the aspiration of the managers of these enterprises to

increase the price of new equipment for the purpose of the guaranteed derivation of a profit and to the decrease of the production cost of items at the expense of their quality. Hence both the reluctance to assimilate fundamentally new equipment and the attempts to reduce the novelty to the minor modernization of items which were assimilated long ago.

Many pilot works have not been converted at all to the new system of planning and economic stimulation, and for their collectives the wage fund is the source of bonuses, while the fulfillment of the plan of the sale of products is the condition for its receipt. Such a situation often leads to the "store" form of trade in the products of pilot works--they sell them to whoever can pay more quickly, without taking an interest in the further fate of items. In our opinion, the source of the payment of bonuses for collectives of all enterprises and organizations, which are taking part in the development and introduction of new equipment and technology, should be common--the profit which is formed in the national economy and is governed by the amount of the economic impact.

In order to ensure unified supervision in the planning and management of the work on the development and introduction of automated control systems, it is necessary in each sector of the republic to organize an integrated scientific research, planning, and design organization with a pilot works, which would work in creative cooperation with specialized organizations of the country.

Domestic science is giving industry an extensive arsenal of new equipment, methods, and techniques of the intensification of production, which are making it possible to improve the quality of the output being produced and to save substantially on manpower, material, and energy resources without large capital outlays. But these innovations often do not become widespread at enterprises. It is easiest of all to explain such a situation by the lack of initiative of managers. But the scientists of scientific research institutes and higher educational institutions first of all should be the "disturbers of the peace" and the champions of the introduction of everything new that science produces. That is why for the purpose of the further increase of the efficiency of the scientific organizational work being performed in the area of automation, in our opinion, there should be established within the republic academy special subdivisions in the new scientific and technical directions: instrument making, automatic control systems, and information science.

The mass introduction of automatic manipulators and robots, and first of all in those sections where to date manual labor continues to reign and there are not enough skilled workers, is an important reserve of the increase of labor productivity. The assimilation of industrial robots is proceeding slowly in the region. Many enterprises with modern equipment and technology, at which it was expected to see automated and mechanized lines, have been put into operation in recent years. In practice this did not happen. Here, as at old enterprises, hundreds of workers are performing very simple technological processes which it would be entirely possible to entrust to equipment. It should become the rule, and not the exception, that every facility, which is being newly put into operation or renovated, would contain the latest technical innovations and in its technical and economic indicators would not be inferior to the best similar facilities in our country and abroad.

The urgency and difficulty of the technical, organizational, and economic problems of the automation of production processes on the basis of electronics require a systems, integrated approach in their solution and purposeful actions. The achievement of the outlined goals for the 12th Five-Year Plan will depend on how quickly the turn to the acceleration of socioeconomic development is made.

7807
CSO: 1814/162

DEVELOPMENTS AT NIKOLAYEV PILOT PLANT OF LUBRICATING SYSTEMS

Moscow PRAVDA in Russian 19 Feb 86 p 2

[Interview with V. Semenov, director of the Nikolayev Pilot Plant of Lubricating Systems, by PRAVDA correspondent V. Vasilets (Nikolayev): "Plant Patents. Quality Is the Mirror of Work"; date not given]

[Text] When you hear the striking of the Kremlin chimes, know this: specialists from the city of Nikolayev produced the advanced system of the lubrication of the tower clocks, which does not have analogues. Their equipment is also serving reliably at the plant of the continuous casting of metal at the Avtostal Plant and is ensuring the reliable operation of equipment at the Arkhangelsk Wood Working Combine and of the well-known Ivanovo metal working complexes. A number of developments of the Nikolayev Pilot Plant of Lubricating Systems have been patented in the United States, the FRG, and France.

How are the plant workers managing to hold high the honor of the domestic make, on which the collective is working?

"Today many production workers are talking about robots, modules, and flexible technologies. Without all this one will not carry out the scientific and technical revolution," plant director V. Semenov says. "But I also rank among the components of progress tribonics, without which it is impossible to talk about the reliability and durability of machines and about their high performance. Finally, about the competitive ability of our machine tools, units, and automated complexes on the world market."

"But what is tribonics?"

"Now you see, the word is also new for you. This is the science of the friction, lubrication, and wear of mechanisms. Friction gave mankind heat and fire, the possibility to stop a train or motor vehicle, to speed up a chemical reaction, to record the human voice on a record, to hear the sound of a violin."

"But you began with it being your enemy."

"True, both an enemy and a friend. Why do machines break down prematurely? Is the metal weak, is the operation incompetent, is the care wrong? Using the language of mathematics, this is the numerator of the formula of reliability. The value of the fraction depends on the denominator, which friction once again is. The reluctance to take it into account and the inability to reduce it as much as possible also lead to undesirable consequences and do enormous harm to the national economy....

"Now about 40 billion rubles a year are being spent on the reconditioning of machines, equipment, and vehicles in the country. The expenditures on the repair of individual types of equipment at times exceed by several fold its cost. For example, sevenfold more assets are needed for the extension of the life of a machine tool than for its production.

"At present 22 percent of the production capacities of the sector are at the disposal of tractor builders, while those, who supply the steel horses with 'horseshoes,' that is, spare parts, have 1.5-fold more fixed capital.

"Finally, the following figures. One-fifth of the metal being smelted in the country is being allocated for the replacement of parts which have outlived their usefulness. At repair plants 8 million workers are reconditioning worn-out equipment."

"Will the use of the achievements of tribonics eliminate the urgency of the problem?"

"Certainly. The task is to supply the national economy with machines which do not require overhauls during the entire period of their life cycle, as well as are undemanding on routine repairs. This is equal in its technical and economic efficiency to the doubling of the capacity of machine building plants. It is worth the trouble, is it not?

"Incidentally, the machines and units now being produced by industry also can and should serve longer. It is important to equip the entire domestic stock with advanced automated systems which reduce and even eliminate friction."

"But are the designers now really not taking this factor into account? The truth, after all, has been known for a long time: if you do not grease, you will not go."

"They are taking it into account," the director replies, "however, the conscientiousness of the operators is being counted on. The documents accompanying the equipment contain a diagram of the lubrication of the assemblies, the time of the replacement of the oils and the frequency of preventive maintenance are indicated. But he, the operator, in pursuit of the output often forgets about this time, or else does not want at all 'to soil his hands.' Hence the early wear, the cannibalization of equipment, and its writing off."

"What is the solution?"

"But it has already been found. Did you direct attention to the name of the enterprise? The plant of lubricating systems! In other words, the machine is now serviced by...a machine. It has its own memory, its own discipline of execution. Our equipment is as if self-servicing. During the past five-year plan alone we supplied the national economy with 260,000 systems which were built according to the modular system. An impact of 50 million rubles was obtained from their introduction.

"But the furnishing of equipment with robots, which made it possible to eliminate an unappealing occupation--the greaser--is one means. Another is the building of the machines themselves from such materials and such components, in which the friction assemblies were wearless. I am not making things up. A self-adjusting phenomenon of nonliving nature--servovita, which translated from Latin means to save life, has already been discovered. In case of friction some destruction of the surface of parts occurs. A protective film, which halts the destructive process, is formed from the formed particles which are entrained by the flow of energy."

"But all the same man is at the center of any system. It is necessary, for example, to know the equipment well in order to operate it competently."

"Of course, one must not disregard the human factor. On the contrary, the new relations of people should correspond to new equipment. Along with the cultivation in them of a love for labor it is important to be concerned about the increase of skills and the mastering of a set of knowledge. At first one cannot do without the firm maintenance of machines, but in the future, with the saturation of the market with them, we will organize the training of specialist-operators for all sectors at our own base."

"Are you taking on unnecessary troubles? For is this also to your disadvantage?"

"For us the end result is important, that the equipment would operate everywhere for a long time and reliably. And the assets? The owners of the machines will reimburse them."

"You said, for all sectors. But you are yourselves under the jurisdiction of only the Ministry of the Machine Tool and Tool Building Industry."

"Previously we worked only for ourselves. But at a certain stage we felt that such 'autonomy' had begun to hinder our progress. Life required that we enter into cooperation with related industries. Now we are cooperating closely with enterprises of the Ministry of the Automotive Industry, the Ministry of Heavy and Transport Machine Building, the Ministry of the Electronics Industry, and a number of other ministries. The volume of the production and reciprocal deliveries of standardized assemblies has exceeded 25 percent. By the end of the current five-year plan cooperative deliveries will double. The plant is agreeing to extensive cooperation with the CEMA countries."

"You are talking about the integration of production, but what about science?"

"Production and science here are inseparable. Cooperating with 30 institutes of the country, we have created our own scientific and technical base which is capable of solving independently all the problems 'from the idea to introduction.'

"The plant design bureau is developing equipment of the future. Engineers V. Buryakov, A. Lysyak, V. Pilipets, V. Sheynov, and O. Bugayev have presented models of devices which do not have analogues in the world."

"Your design bureau has as many inventions as no other scientific research institute. And again an invention, an original solution. What is enabling the collective to work for the future?"

"Here everything is united: the idea, the development, the experiment, introduction. Everything is settled within our walls, everything is embodied on our own. Creative brigades, in which engineers work alongside workers, are operating at the enterprise. In such cooperation, for example, new oil dispensers and S 48-M lubricating stations were developed. They appeared a year ahead of time owing to the efforts of machine tool operators V. Malikov and M. Stanko and designers Ya. Ratner, N. Trofimenko, V. Kudrich, V. Medved, and A. Kuznetsov. And here the collective is deliberately agreeing to the violation of...discipline. For example, here several specialists are fulfilling the same theme. They are not afraid of making a mistake. But the best is selected for the conveyor."

"But what about the overexpenditure of the wage?"

"This is our internal affair. In addition to the rate, some developers of new equipment receive up to two salaries in the form of a bonus. But a new thing pays for itself with interest. The economic efficiency of the new equipment, which was developed by engineers A. Deordiyev, N. Belov, and S. Chervinskiy, is now being calculated. An enormous gain is expected."

"In the past 20 years the plant has increased the output of products by fifty-sixfold. The new five-year plan has begun. With what program has the collective planned to cope, what is the guarantee that it will be successfully fulfilled?"

"The file of orders has really swollen. In order to fill the orders, it is necessary to increase the output of products by 3.6-fold. And not simply to increase it, but to deliver to consumers the most advanced equipment which is called upon to provide an economic impact of 200 million rubles. This is what is behind the prosaic name of the items--a lubricating system.

"It has been decided to obtain the basic increase by the increase of labor productivity and the intensification of engineering thought. We carrying out the renovation of shops and are reequipping them. Already today the proportion of advanced equipment comes to 37 percent. The policy of introducing robotized complexes and flexible automatic lines has been adopted. Everything is being done so that the human factor would come into action.

"And it is coming into action. An energetic start was made with the first days of the new five-year plan. In January the increase of the volume of output came to 25 percent more than during the same period last year. We are confidently looking ahead."

7807
CSO: 1814/162

WORK OF LATVIAN ACADEMY OF SCIENCES' PARTY COMMITTEE

Riga IZVESTIYA AKADEMII NAUK LATVIYSKOY SSR in Russian No 2, Feb 86 pp 3-7

[Article by R.P. Skudra, secretary of the Party Committee of the Latvian SSR Academy of Sciences: "The Party Organization of the Academy on the Threshold of the 27th CPSU Congress"]

[Text] The past year was significant for us for the fact that the country under the supervision of the Communist Party began the implementation of the large-scale designs, which were formulated at the April (1985) CPSU Central Committee Plenum, and then at the June (1985) conference in the CPSU Central Committee on questions of scientific and technical progress in the form of the concept of the acceleration of the socioeconomic development of the country and, on this basis, the achievement of a new qualitative state of our society.

Our party is greeting the next, 27th congress with this concept. The acceleration of socioeconomic development is the heart of the precongress documents which were submitted for national discussion by the October (1985) CPSU Central Committee Plenum.

The process of revising the forms and methods of the party supervision of socioeconomic development and all party organizational and ideological work has begun in the life and activity of party organizations, labor collectives, and the entire party.

The precongress party meetings and conferences, which were held to hear reports and elect new officials, were an important stage in this process. The communists analyzed thoroughly and comprehensively what had been done, openly and frankly revealed the shortcomings, and specified the tasks for the coming period. The mobilization of labor collectives for the fulfillment of the plans, the socialist obligations of the year, and the increased obligations, which were additionally assumed in honor of the 27th CPSU Congress and the 24th Latvian CP Congress, the creation in each collective of an atmosphere of great discipline and order, the increase of the organizing role of party organizations and each communist--these are the basic directions of our activity, to which all the organizing and political educational work is subordinate.

The central place at the Fourth Party Conference of the Academy of Sciences of our republic, which was held in late October 1985, both in the report of the party committee and in the statements of the delegates was assigned to the specification of the role and place of the scientific institutions of the academy in the acceleration of scientific and technical progress and to the discussion of the new important and responsible tasks, which were posed for scientific collectives at the June conference in the CPSU Central Committee on questions of scientific and technical progress. These tasks are called upon to become a specific program of all our work for the immediate period and for the more distant future.

In specifying the role and place of scientists in the acceleration of scientific and technical progress the CPSU Central Committee noted that the utmost development of basic research, which ensures the priority of Soviet science, and on this basis the effective influence of applied science on the solution of the practical problems of scientific and technical progress should be the main line.

During the period under review the party committee, the presidium of the academy, and the party organizations in their organizing activity were guided by precisely these requirements. At the meetings of the republic party aktiv on 19 October 1984 and 13 July 1985 specific tasks on the strengthening of the role of our Academy of Sciences and the influence of scientific collectives on the increase of production efficiency were formulated. While organizing the fulfillment of these tasks, the party committee and the presidium constantly directed the work of the party organization and the managers of scientific institutions. For these purposes the party committee and the party buro studied and at their meetings discussed the participation of communists in the settlement of various questions of scientific and production activity and made an analysis of the work at the local level. At the joint meetings of the party committee and the presidium the progress of fulfillment was discussed and the results of the socialist competition were evaluated. An analysis of the results of scientific activity was made in the departments, at the meetings of the presidium, and at the annual general assemblies of the academy.

During the period under review the party committee examined the questions which are the key ones for the increase of the efficiency of the scientific developments of institutions of the academy. Thus, in 1984 the party committee heard the report on the organizing work of the Scientific and Technical Developments Department, which was established for the stimulation of the work on the introduction of scientific developments in production and for the broadening and strengthening of the contacts of science with production. It was noted that the department carries out the organizational and procedural supervision of the services of the institutes, which deal with introduction, monitor and coordinate their work, and generalize and analyze it on the scale of the academy. As a whole the establishment of the department contributed to the broadening and strengthening of the contacts of academic scientific institutions with sectors of the national economy and to the improvement of introducing work. At the same time it was noted that the department is not yet using all the means for the establishment of contacts with ministries on the basis of comprehensive programs, while it was

recommended to the management of the department to increase the attention to questions of organizational methods work both within the department and with the services of institutes. These remarks and recommendations were taken into account in the subsequent work of the department.

Or there is another example. In August 1985 the activity of the party organization and communist managers of the Central Intersectorial Design and Technological Bureau (TsMKTB) of Robotics on the reorganization of work in conformity with the directives of the CPSU Central Committee on the acceleration of scientific and technical progress was heard about at the meeting of the party committee of the Latvian SSR Academy of Sciences. The criticism, which was heard in address to the Center of Robotics at the meeting of the republic party aktiv in October 1984, served as the occasion for this. The study of the state of affairs in this collective illuminated more clearly the positive things that had been done during 1984-1985: the contracts concluded with enterprises became more encompassing, 73 percent of the developments of the center are being introduced at enterprises of Riga and the republic, mainly at large associations. But omissions, which are checking the use of all the possibilities for the increase of the contribution to the area of the robotization of production processes, were also revealed in the work of the party organization and the management. The questions, on which it is necessary to give assistance to the Center of Robotics, were also examined at the meeting of the party committee.

Various aspects of the scientific and production activity of the Institute of Biology, the Institute of Physics, and others were analyzed at the meetings of the party committee of the academy. Workers' conferences on questions, which are connected with the state of the experimental base of several special design and technological bureaus, material and technical supply, economy, and thrift, were held. This work pursued the basic goal to increase the party influence on all scientific and production processes through the strengthening of the vanguard role of communists, first of all to increase the responsibility of communist managers for the assigned section of the work and the improvement of the style and methods of their work.

At the party conference the achievements of individual scientific collectives and academic institutions as a whole were spoken about extremely concisely both in the report of the party committee and in the statements of the delegates. And not because there was nothing to speak about. Each speaker wanted to use the platform of the conference in order to say what is preventing us today from working better, from working more efficiently, and from intensifying the labor of each scientist, and why the practical significance of the results of scientific research is still inadequate. In the report of the party committee it was justly stated that the possibilities, which exist for the increase of the efficiency and practical significance of the results of scientific research, are not being fully realized in scientific and production work. In individual important scientific directions, such as solid-state physics, electronics, semiconductors, and hydrobiology, which are called upon to have a substantial influence on the acceleration of scientific and technical progress, the achieved results have not yet received large-scale introduction in the national economy. Therefore, the task was posed for party organizations and managers of scientific institutions: when drawing up the

plans for the 12th Five-Year Plan and for a longer period the availability of new scientific ideas should be established thoroughly and comprehensively and the attention of scientific collectives should be concentrated on everything promising that is conducive to the acceleration of scientific and technical progress.

The delegates of the conference in their statements directed attention to the need for the broadening of the forms of contact with production enterprises. Life confirms that the existing forms (economic contracts, contracts on scientific and technical cooperation, sectorial laboratories, joint scientific and technical councils) are still poorly influencing the effectiveness of these contacts. And the possibilities of introducing the scientific developments of scientists of the academy at enterprises of the republic for the present are being used far from completely.

Personnel and first of all highly skilled leading personnel, who have the ability to advance new scientific ideas and have a complete command of the methodology and organization of research, are playing a decisive role in science. A thorough, comprehensive analysis of the work with personnel, which is being performed by the party committee and the presidium of the academy and by the party organizations and managers of scientific institutions, was given at the party conference. Along with the positive things in this work there are also oversights and omissions. The party buros and communist managers, whose style of work and methods of management suffer from substantial shortcomings and who are not devoting proper attention to the increase of scientists of the highest skill and the training of young scientists, were justly criticized.

In the report of the party committee and the statements of the delegates much attention was devoted to the urgent problem of ideological and mass political work. The innovative tasks, which have been posed by the party at the present stage, require the further improvement of political educational work and its closer linking with life and with the specific tasks of each scientific institution. For the present the content of many ideological measures, as before, does not have enough novelty of the depth of emotional influence. The enthusiasm for mass forms of political educational work predominates, at times to the detriment of the differentiated approach, individual work with people, and attention to the specific person and his interests.

At the Fourth Party Conference of the academy particular attention was devoted to the improvement of organizational party work. The efficiency of party organizations and the degree of their influence on the successful accomplishment of the tasks, which face each collective, in many respects depend on the level of intraparty work and first of all on the activeness and the increase of the vanguard role of each communist and on the steadfast observance of Lenin's norms of party life.

The demands, which are being made today on Soviet science, were clearly formulated in the draft of the new version of the CPSU Program and in the draft of the Basic Directions of USSR Economic and Social Development for 1986-1990 and the Period to 2000. The discussion in all the party organizations and labor collectives of the academy of these documents was of a

practical, constructive nature. It was closely linked with the accomplishment of the current and long-range tasks, which face each scientific collective, and as if continued the conversation which was begun at the party conference. The fact that more than 6,000 workers of the academy took part in the discussion of the drafts of the new version of the CPSU Program, the changes in the Party By-Laws, and the Basic Directions of USSR Economic and Social Development and 466 communists and nonparty members spoke, attests to the great interest of each and everyone in these documents of enormous theoretical and political importance. In the statements the full support and approval of the precongress documents were voiced, and more than 60 specific suggestions with respect to changes in or additions to individual provisions of these three drafts were also made. Particular attention of the speakers was drawn to the section of the draft of the new version of the CPSU Program, which indicates the increasing role of science at the present stage and the need for the intensification of the integration of the social, natural, and technical sciences, as well as to the sections of the draft of the Basic Directions, in which the task of bringing the national economy of our country up to the leading levels of science, engineering, and technology is posed. An indispensable condition of this is the intensification of the integration of science and production, the improvement of the organization, and the shortening of the time of the assimilation by production of scientific ideas, technical innovations, and inventions.

By the unanimous support and approval of the precongress documents all the collectives of the academy confirmed their readiness to direct all efforts at the successful fulfillment of the tasks, which face the scientists of the academy in the acceleration of scientific and technical progress, at the worthy greeting of the 27th CPSU Congress, and the implementation of its decisions.

The forum of the communists of our republic was held on 24-25 January, on the threshold of the main political event of 1986--the 27th congress of Lenin's party. The 24th Latvian CP Congress summarized the work done during the past 5-year period and outlined the plans for the immediate and distant future. The congress delegates analyzed objectively and exactingly the gained experience, identified the bottlenecks and unsolved problems, and specified the ways and means of fulfilling the outlined plans.

In the accountability report of the Latvian CP Central Committee First Secretary of the Central Committee B.K. Pugo noted that the front line of scientific and technical progress runs through science, which now is fully becoming a productive force. The daily attention of the Latvian CP Central Committee and the city and rayon party committees to the increase of the efficiency of scientific research and the speeding up of its introduction in production stems from this.

The developments of scientists of the republic in the area of biotechnology, genetic engineering, physics, chemistry, and cybernetics and the creation of new compounds for health care and agriculture, which have received practical application, are well known worldwide.

Nevertheless, as was noted in the report, today life requires that science be turned resolutely toward the needs of production, and production toward science.

Chairman of the Latvian SSR Council of Ministers Yu.Ya. Ruben spoke about the need for the further increase of the scientific and technical potential of the republic in the report "On the Draft of the Basic Directions of USSR Economic and Social Development for 1986-1990 and the Period to 2000." The speaker stressed the need for the leading development by scientists of the academy and higher educational institutions of basic and fundamental research and to achieve the more rapid materialization of scientific developments. Scientific production associations, the engineering and technical centers in the system of the Academy of Sciences, as well as scientific and technical complexes, problem laboratories, and introducing organizations are called upon to become the basis of the integration of science and production. It is envisaged to improve and strengthen the material and technical base of scientific research institutions and first of all their experimental works.

At the congress Academy President B.A. Purin reported on the work which is already being performed today by the republic Academy of Sciences on the accomplishment of the large-scale tasks which have been posed by the party in the area of the acceleration of scientific and technical progress. The group of priority scientific research directions, on which the basic efforts will be concentrated, was outlined. Jointly with the republic State Planning Committee republic scientific and technical programs were formulated and the activity of many sectorial scientific research, planning, and design organizations was analyzed. Suggestions on the establishment of republic scientific and technical complexes are being elaborated for the further strengthening of the interaction of academic science, science of higher educational institutions, and sectorial science with production. At the same time, as B.A. Purin noted in his statement, the contribution of the academy to the development of scientific and technical progress could be more significant. A detailed discussion of the basic causes of such a situation took place at the regular session of the General Assembly of the Latvian SSR Academy of Sciences in November of last year.

The implementation of the decisions, which were adopted by the 24th Latvian CP Congress, and all the ideas and assignments, which were advanced in the documents of the 27th CPSU Congress, is today our general most important task. The interested, practical discussion by scientists and all staff members of the academy of the precongress documents makes it possible to express confidence that the collectives of the institutions of the academy and their managers and public organizations will exert every effort for the successful fulfillment of the large-scale tasks of the new five-year plan.

7807
CSO: 1814/174

EQUIPMENT PROBLEMS AT BALTIYSKAYA MANUFAKTURA COMBINE

Tallinn SOVETSKAYA ESTONIYA in Russian 31 Jan 86 p 3

[Article by V. Ivanov: "More Difficult Means More Interesting. Technology and Psychology--What They Think About Their Mutual Influence at the Baltiyskaya manufaktura Combine"]

[Text] The slogan "Equipment Without People, Who Have Mastered the Equipment, Is Dead" was popular in the 1930's. But what is one to say about today, when in the hands of man there is immeasurably more advanced and complex equipment than half a century ago!

"That is why the entire party organization of the combine and every communist at his place is doing everything in order to bring to the awareness of people and to the realization by them of a simple and important idea: today we have in our hands highly productive and expensive equipment."

I heard these words from Yekaterina Filatova, secretary of the party committee of the Baltiyskaya manufaktura Combine. The same idea crept in later, in the conversation with director Yaagu Kurg.

"Bear in mind," Yaagu Eduardovich emphasized, "that every, for example, spinning machine of the new generation is 500,000 rubles."

Strictly speaking, I came to the combine for the sake of this--in order to ascertain to what extent and how new equipment influences the consciousness of people, their psychology, and attitude toward labor. In many respects this interest was governed by the fact that at the Baltiyskaya manufaktura Combine renovation is being carried out not for the first year, the old walls "are being filled" with new equipment and modern technology. The people also have to change their methods.

"I am conscious," the director shares his observations, "that the retooling of an enterprise helps not only to improve production, but also to stimulate moral factors and improves the interrelations in the collective."

My conversation with spinner Virva Kadastik was weighty confirmation of his opinion.

"Yes," the woman worker said, "the new BD-200 RTsYe pneumatic machines are much more complex than the ones which we had before renovation. Work at them requires greater effort. But psychologically it is much easier. This 'intelligent' equipment was designed with allowance made for conveniences for the person who will attend them."

Supplementing what was said by the woman spinner, let us take into consideration for ourselves: in spite of the higher output of the BD-200 RTsYe (and, thus, also of those who work at them), the service zones in spinning remained the same. At the same time product quality increased sharply--this is given the fact that the yield of thread increased on the average by 25 percent. But the main thing, perhaps, is that the differences when distributing raw materials became fewer, since now every working woman is responsible for the overall final product; the moral microclimate is healthier.

"And if they were now to suggest to us to return to the old equipment, at which the work was a little more peaceful," V. Kadastik summarizes, "we would refuse."

This time I also heard from many people at the combine, I must confess, reproaches meant for the producers of the new equipment: that assembly is imperfect, this part has not been brought up to condition. But here is what attracted attention: while swearing at the suppliers, the people in so doing actively proposed their own changes and improvement in the design. That is, they are not standing aloof, like passive "appendages" to the machine, but are trying to treat creatively the arising problems and are actively seeking means of their solution.

Perhaps, first of all this applies to such collectives as the brigade of repairmen of the carding machine stock, of which communist Vyacheslav Kolyanov is in charge.

"It is possible, after all, to approach in a different way the installation of new equipment," the brigade leader reflects. "You received parts from the producer, assembled them mechanically, according to the drawings--and that is all.... It is my little job if it does not work, send it back, let whoever made it be responsible. But it is possible to spend hours of overtime and at times to torment oneself, but to make sense of the machine tool and start it on time. As, for example, was the case with the ChMD-5 carding machines. Their ordinal plant numbers are from 1 to 10, and such ones no longer exist in the Soviet Union."

According to the idea of the designers of the Ivanovo Plant of Carding Machines, as they explained to me at the combine, the final industrial readiness of the ChMD-5 is planned for late 1987, but today six such machines are already putting out products at the Baltiyskaya manufaktura Combine. True, for the present they have not yet been completely debugged, but the fact is significant. And everything is because such people as Vladimir Pavlyuk, Viktor Tolstov, and others like them are working here. On their initiative they changed much in the design of the machine tools, and the manufacturing engineers took the suggestions into account and are introducing them in their

subsequent developments. Here the communists of the brigade, who are keeping this work under constant control, are playing not the last role.

Let us add that precisely on the initiative of the party members this collective was one of the first at the combine to undertake to work according to the initiative of the Sverdlovsk workers, that is, without violations of labor and social discipline. But Kolyanov's contingent was at that time, it can be said, difficult. Other brigades even with a more "satisfactory" composition avoided assuming such responsibility.

In a year of work according to the Sverdlovsk method in the brigade of Kolyanov there were only two cases of violations, while previously the same period accounted for tenfold more....

My dialogue with the young communist Vladimir Kolupayev, assistant foreman of the section of carding machines, sounded like a kind of continuation of this theme.

"A change is occurring in people, the initiative in everyone is increasing, this is accurate. Previously in case of the stoppage of equipment they could wait for the duty electrician or deputy foreman, without worrying about the consequences. But now, even if they have noticed the possibility of a breakdown, which has only barely begun to show, they already run for me and sound the alarm!"

There was something elusively common in these conversations with people who are different both in occupation and in the position held. And at parting Ye. Filatova formulated this common thing briefly, but broadly:

"Labor has become more intense and intensive, it goes without saying. But also more interesting!"

Perhaps, it is possible to boldly apply these words not only to the affairs of the workers of the combine, but also in general to all accomplishments of today. Life does not tolerate stagnation, while the present moment requires the use of all available forces and possibilities. But it is of absorbing interest to transform, to change over what is customary to a new way.

7807
CSO: 1814/162

SCIENCE, PRODUCTION IN TERRITORIAL PRODUCTION COMPLEXES

Alma-Ata VESTNIK AKADEMII NAUK KAZAKHSKOY SSR in Russian No 2, Feb 86 pp 29-35

[Article by A.A. Alimbayev, A.G. Kravtsov, and Kh.B. Kabzhanov under the rubric "Problems of the Development of Territorial Production Complexes": "The Intensification of Science and Production Under the Conditions of the Functioning of Territorial Production Complexes"]

[Text] The increase of the role of the regional management of the integration of science with production is one of the important regularities of the improvement of mature socialism. This stems first of all from the appearance of a large number of economic and social problems of social development, which can be solved significantly more rapidly and efficiently within the framework of territorial production complexes (TPK). The increase of the efficiency of this process is an important reserve of the acceleration of scientific and technical progress, the optimum distribution of productive forces in the largest regions, as well as their comprehensive use.

In the draft of the Basic Directions of USSR Economic and Social Development for 1986-1990 and the Period to 2000 the need is indicated: "To use extensively new advanced forms of the organization of scientific activity, which make it possible in the shortest possible time to solve intersectorial scientific and technical problems. To establish for the development and large-scale introduction of fundamentally new types of equipment and technology intersectorial scientific and technical complexes and centers. To improve the interaction of the academic sector of science, the sectorial sector of science, and the sector of science of higher educational institutions." (Footnote 1) ("Osnovnyye napravleniya ekonomicheskogo i sotsialnogo razvitiya SSSR na 1986-1990 gody i na period do 2000 goda (proyekt)" [The Basic Directions of USSR Economic and Social Development for 1986-1990 and the Period to 2000 (Draft)], Moscow, 1985, p 25)

The role of regional management does not reduce only to the supervision of production. Its basic goal is the unity of the economic and social development of the region, the most complete use of the achievements of science and technology in the interests of the country, and the comprehensive development of the region. Here the direct strengthening of the scientific, technical, and economic interrelations of science and production occurs. This objective process at present "is sweeping away" the structural barriers

between scientific institutions and production enterprises. Thus, for example, whereas previously primarily tasks of a more specific nature, which were connected with the increase of the efficiency of individual industrial enterprises, production associations, or the sector as a whole, faced the integration of science and production, with the functioning of territorial production complexes the problems of its comprehensive influence on large natural objects and vast regional territories are being posed.

Thus, at each stage of technical, economic, and social development scientific and technical progress is enlarging the zone of its influence. This, in turn, is objectively posing the task of creating a flexible continuous system of management, which ensures the balance and functioning of territorial production complexes.

The territorial production complex, as is known, is formed within large economic regions. Its components (national economic objects of various kinds) are closely interconnected on the basis of common local natural and economic conditions. These conditions, if they are viewed from the standpoint of the interests of the development of the given territory, are advantageous for all the ministries and departments which have their facilities here. Consequently, the functioning of territorial production complexes is the new thing in the development of large economic regions, which follows most directly from Lenin's principles of the distribution of productive forces over the country as a whole, which takes into account the availability of favorable raw material and other resources. As T.A. Ashimbayev notes, "the idea of their establishment consists in combining within a specific region two elements: to develop comprehensively the territory and the interconnected sectors. The former follows from the more complete development of natural resources and the use of manpower resources, while the latter follows from the combination of different sectors on the basis of integration, cooperation, and specialization, the combination of characteristic and service sectors, which cuts down social expenses." (Footnote 2) (T.A. Ashimbayev, "Ekonomika Kazakhstana: sversheniya, perspektivy" [The Economy of Kazakhstan: Accomplishments, Prospects], Alma-Ata, 1982, p 49)

However, the real prerequisites of the formation and functioning of territorial production complexes are prepared directly in the process of scientific and technical progress and the implementation of its end results, since only by relying on the latest equipment and technology is it possible to achieve high results in the increase of the efficiency of the comprehensive development of territorial production complexes. In this connection it is necessary to note that not all representatives of ministries and departments are yet striving for the purposeful or at least the stage-by-stage development of the territory which is in their department. It is possible to explain this, in our opinion, by the following objective conditions.

First of all, the reason consists in the fact that under present conditions the formation of the process of the integration of science and production for the most part has a sectorial orientation. The sectorial affinity of scientific research institutes and production enterprises in most cases served as the basis for the organization of scientific production associations and

other formations with scientific research or planning institutes and design bureaus within them.

The territorial proximity of facilities created the most favorable conditions which facilitate day-to-day management and the economic relations among the united units. Not by chance was the territorial unity of all the members of the "science--production" chain, which belong to the same sector or the same ministry, but do not always have within them units of the "research--production" cycle, a prerequisite of the organization of many scientific production complexes. The absence in territorial production complexes of scientific research or planning and design organizations and institutions has the result that an entire series of units, which are connected with the development of the technical level of production and scientific and technical progress, is lost. As a result a situation is created, in which within the territorial production complex the uniform formation of the scientific and technical potential of the sectors represented in it is upset, which leads to the inadequately efficient development of the region as a whole, as well as is aggravated somewhat by the effect of a number of subjective factors.

The sectorial specialization of scientific research and development, which does not take adequately into account regional specialization and intersectorial cooperation, leads to departmental isolation and to work only for "one's own" industrial production enterprises, without directing proper attention to or checking the development of other sectors which are in territorial proximity.

In this connection another situation also arises, when, as was noted in the editorial "Competition and Technical Progress" of the newspaper PRAVDA, "as before technical growth is being hindered due to the narrow departmental approach and the habit, which has taken root in a number of cases, of dismissing 'other people's,' although unquestionably valuable innovations." (Footnote 3) (PRAVDA, 30 January 1985)

Thus, the departmental "monopolization" of scientific and technical progress is also becoming to a significant degree a hindrance to the comprehensive intersectorial use of the achievements of scientific and technical progress. The activity of interdepartmental organs, which support the sectorial system of the integration of science, by the organization of their own planning and supply work which has been set up after the sectorial pattern, is aggravating the formed situation.

Moreover, interdepartmental organizations at times strive not to raise issues which concern intersectorial problems. This has the result that in essence the functioning interdepartmental organs, which are called upon to solve these problems, in fact are cultivating themselves the sectorial principle of the integration of science and production. In our opinion, there is no need for the establishment of scientific production complexes in all the sectors which can be represented within the territorial production complex, since there is not always a scientific production and economic need for this. This can also lead to the excessive increase of the number of scientists and, moreover, to the duplication of research and development. However, at present many ministries and departments are stubbornly seeking an increase of the number of

scientists at the organizations subordinate to them, while showing little concern in so doing for the comprehensiveness and systems nature of the technical development of production at the enterprises which are located in one territorial production complex. The lack of the comprehensive, interdepartmental use of sectorial science obviously leads to a decrease of the productivity of many scientific research institutes and design bureaus and the quality of their work and, hence, as a whole to the decrease of the efficiency of scientific and technical progress.

Thus, it is possible to come to the conclusion that the functioning of territorial production complexes, which have a multisectorial economy, requires a somewhat different approach to the problems of the management of the integration of science and production.

Indeed, given the profound qualitative changes which are occurring in the economy at the stage of mature socialism under the influence of the achievements of scientific and technical progress, in the territorial organization of social production a large number of regional problems are also arising, in particular, in the use of the achievements of science and technology. The more diverse and complex the external and internal relations of regions, of which territorial production complexes constitute the basis, become, the more urgently the need for territorial forms of the integration of science and production, the efficient solution of the set of problems, and the development of scientific and technical progress, which take into account the interests of both individual sectors and the specific territory as a whole, is being felt. Under these conditions the establishment of scientific production associations can no longer be the only form of the organizational convergence of science with production in the system of the territorial management of scientific and technical progress. This is confirmed by the fact that the increase of the level of the intensification of territorial production complexes is fundamentally dependent not only on the implementation of the achievements of science and technology by one of the numerous sectors, which are at times of the nature of single uncoordinated measures on the development and introduction of advanced equipment and technology. But this, first of all, is governed by the degree of the comprehensive interdepartmental use of the achievements of scientific and technical progress by all the sectors of the given region and the consideration of the entire set of elements of the development of science and technology, which follow from the common fundamental problems facing the national economy of the region as a whole and take into account the optimum use of the concrete specific factors which are characteristic of the given region. Of course, under these conditions the finding of efficient forms of the integration of science with production within the territorial production complex is an extremely difficult problem on the scientific and practical level. These difficulties are also governed by the fact that the territorial production complex, which takes in within the region intersectorial production, requires the unusually great dynamicness of the management of the various units which are a part of its structure under the conditions of the practically complete lack in economic practice of experience in the management of scientific and technical progress. Moreover, the participation of broad masses of workers, who are capable of the quickest introduction of the achievements of science and technology, and the elimination of departmental barriers when specifying the technical policy of

the territorial industrial complex are necessary for the implementation of the territorial management of scientific and technical progress. This is impossible without the elaboration of more effective measures on the stimulation of the fulfillment of the plans of the introduction of new equipment on the part of interdepartmental territorial organs of management and without the existence of a flexible system of accounting in the organs of the interdepartmental planning of scientific and technical progress of the degree of the intersectorial integration of science and production in conformity with the specific conditions of the development of the territorial production complex, which, in turn, is hard to accomplish without effective tools of the forecasting of the socioeconomic consequences of scientific and technical progress.

At present no sector of production is capable of having the entire set of scientific and planning organizations, which could promote the progress of the entire sector or association (enterprise), not to mention the supply of a number of sectors, which are in territorial proximity, with scientific documents, as happens in territorial production complexes. Consequently, the establishment of the intersectorial and interdepartmental cooperation of scientific, planning, and design organizations, which could perform competently and consistently in a planned manner comprehensive scientific research along the entire front of the development of intersectorial science and technology, follows from the objective need for the proportionate development of the complex. The formation of such an organization is all the more important, as the structure of sectorial science in fact does not coincide with the sectorial structure of the territorial production complex.

A comprehensive approach should be the main thing in the methodology of the formation of the interdepartmental and intersectorial organization for the introduction of the achievements of science and technology within the functioning territorial production complex. This implies the need for the functioning of such an economic mechanism of the integration of science and production within the territorial production complex, which would ensure the meeting of the economic interests of the integrated scientific research, planning, and design organizations, on the one hand, and those who use the new equipment, on the other. In the draft of the Basic Directions of USSR Economic and Social Development it is noted: "To increase the responsibility of scientific organizations for the level of research and development and for their more complete use." (Footnote 4) ("Osnovnyye napravleniya ekonomicheskogo i sotsialnogo razvitiya SSSR na 1986-1990 gody i na period do 2000 goda," p 24) The particular significance of scientific research in the successful solution of problems of an intersectorial and regional nature is distinguished by this.

The comprehensiveness of the implementation of the achievements of science and technology to a certain degree can also be governed by the more active participation of the given territorial region in socialist scientific and technical integration.

When developing the forms of the integration of science and production within the territorial production complex, it is necessary, in our opinion, to direct particular attention to the conformity of the work of regional and

interdepartmental scientific research institutes, design bureaus, and planning and design bureaus to the posed tasks. This will contribute significantly to the elimination of intersectorial interdepartmental barriers when introducing the achievements of scientific and technical progress in all the sectors of the territorial production complex and will speed up the "research--production" cycle of the given region.

In this connection it should be noted that we do not disclaim the established forms of the integration of science and production, in particular, scientific production associations, which have demonstrated their necessity and efficiency. However, when it is a question of the qualitatively new form of the development of the integration of science with production and the improvement of the components of the functioning territorial production complex, which is represented on the territory of the region by various sectors, many of which have a rapidly changing product mix and a high science intensiveness, such forms as scientific production associations inadequately satisfy the requirements of the day.

Practice itself suggests the necessary forms of the integration of science and production, which meet the present requirements of the development of the multisectorial territorial production complex. The simplest ones of them are the development of pilot experimental bases, testing grounds, stands, and collective-use computer and other laboratory equipment. At present at a number of enterprises of the sectors of the national economy for the conducting of more thorough, comprehensive research and experiments the pilot experimental bases are being furnished with complex and expensive equipment, which one enterprise in practice is unable to utilize completely and efficiently. For the elimination of this and for the purpose of the more efficient use of equipment intersectorial pilot experimental works, testing grounds, and warehouses of research equipment, which on a contractual basis would serve the scientific organizations present in the territorial production complex regardless of their departments and subordination, should be set up under the aegis of interdepartmental organizations. The rental of scientific research equipment by interested organizations would undoubtedly make it possible to increase the technical supply of all the sectors represented in this region, including ones with a negligible scientific and technical potential.

There is also another means of the integration of science and production within the territorial production complex. The point is that given the high level and concentration of the scientific and technical potential in the indicated territorial production complexes the need for the establishment of a unified coordinating scientific center is arising. As an example it is possible to cite the organization in Karaganda of the Central Kazakhstan Department of the Kazakh SSR Academy of Sciences.

The very fact of the establishment of this department testifies that active purposeful work on the coordination of the activity of all the scientific institutions, regardless of their departmental affiliation, which are located in the region, will begin already in the near future. The efficient management of the scientific and technical potential of Central Kazakhstan as a whole will be ensured by this, which will make it possible to solve

effectively a large number of scientific and technical problems, on which the prospects of the development of not only the multisectorial national economy of the region, but also the entire republic as a whole depend.

Thus, the establishment of scientific centers affords the possibility of improving the organizational convergence of science and production in the region. It envisages not only the consideration of sectorial and territorial interests in the development of the scientific and technical progress of the given region, not only affords the possibility of coordinating the efforts of scientific institutions on the acceleration of scientific and technical progress, but makes it possible to represent completely and clearly on the scale of the region the means and pace of scientific and technical progress in the sectors of the national economy, which are present here.

A strong point of the participation of scientific centers in the intensification of territorial production complexes is the fact that their activity makes it possible to combine most efficiently the sectorial and territorial aspects in the management of scientific and technical progress, since the achievement of the clearly posed ultimate goals of technical progress and the assurance of the realization of the enormous possibilities of the intensification of social production, which are incorporated in it, are the main reference points in their work.

There is also another means of the integration of science and production within the territorial production complex. It is a question of when the sectors represented in the region have been involved in one common development, that is, in an intersectorial program, which acts as the organizing basis and ensures the interaction of all the participants and the representatives of the different departments in the efficient use of the territorial scientific and technical potential. The fulfillment of a common program by the different sectors of the territorial production complex makes it possible to coordinate within the given region the efforts of scientific institutions, enterprises, and organizations and to extend the contact of science with production for the purpose of increasing the efficiency of the entire national economic complex of the indicated territory. The favorable influence of comprehensive programs on the functioning of the territorial production complex depends substantially on the quality of the planning of the intersectorial program, the degree of the consideration here of the interests and possibilities of the development of each performer and the region as a whole, and the elaboration of the conditions of the effective both sectorial and territorial monitoring of the fulfillment of the program of scientific and technical progress. Such experience already exists in the country. Thus, interdepartmental comprehensive programs of the acceleration of scientific and technical progress have been formulated and successfully implemented in recent years in many oblasts, krays, and republics of the country. Scientific, planning, and design organizations, higher educational institutions, production associations, and enterprises took part in their formulation.

Quite recently the CPSU Central Committee endorsed the experience of the Leningrad Oblast Committee of the CPSU, which formulated a territorial sectorial program of the intensification of the economy on the basis of the

speeding up of the introduction of scientific and technical achievements in the national economy.

As practical experience showed, the main practical task of the program consists in concentrating the available scientific and technical forces on the basic directions of the development of the economy of regions. The tasks being accomplished here can be most diverse: the problems of the efficient use of fuel, energy, mineral raw material, biological, and other resources, environmental protection, the increase of the industrial potential of the region on the basis of the further development of the integration of science and production, and so on.

The Leningraders in practice satisfied themselves that the implementation of comprehensive goal programs affords new possibilities for the creative coordination of research and the concentration of the efforts of scientific organizations of various ministries and departments, which leads to the intensification of the comprehensive development of the territory of the region on the basis of the use of new forms of the integration of science and production.

In this connection it is also impossible not to note the experience of implementing the Sibir Regional Program, in which about 60 institutes and design bureaus of the Siberian Department of the USSR Academy of Sciences and more than 350 organizations of 60 ministries and departments were involved. Calculations show that each ruble of expenditures here may yield an economic impact of not less than 20 rubles. (Footnote 5) (See EKONOMICHESKAYA GAZETA, No 40, 1984, p 8)

While analyzing the available experience of using regional programs, which are a form of the regional management of scientific and technical progress, let us note the positive results of the work of the Western Scientific Center of the Ukrainian SSR Academy of Sciences on the establishment and development of one of the most effective forms of the creative cooperation of academic institutes with production--interdepartmental special-purpose scientific production associations (MTsNPO). Their organization contributes to the comprehensive planning of the "research--production" cycle and shortens the time of the introduction of scientific results which are free of narrow departmental interests. The practical experience of the functioning of interdepartmental special-purpose scientific production associations shows that the shortening of the time of development and assimilation comes to 1.5-2 years, including the time of development by 0.6-0.8 year. (Footnote 6) (See "Ekonomicheskiye problemy razvitiya territorialnykh nauchno-tekhnicheskikh kompleksov" [Economic Problems of the Development of Territorial Scientific and Technical Complexes], Moscow, 1983, p 32)

The experience of the Western Scientific Center of the Ukrainian SSR Academy of Sciences showed that the organizational factor, the essence of which consists in the elimination of parallelism and departmentalism in the solution of economic, scientific, and technical problems and the efficient organization of the interconnection of science and production for all the participants in the comprehensive goal program, is one of the essential features of the efficiency of the activity of interdepartmental special-purpose scientific

production associations. In this connection for the more efficient use of the achievements of science and technology in the regions it seems important to use more extensively the elements of goal program planning.

For each large territorial production complex it is necessary to specify the most important scientific and scientific and technical problems.

Such programs of the development of regions could constitute the basis of the comprehensive program of scientific and technical progress of the country for 1991-2010 as components of the section "Regional Problems of Scientific and Technical Progress." This would make it possible in the programs to reflect more completely the peculiarities of the scientific and technical policy, which is planned for implementation on the specific territory, the specific nature of the region, and the level and prospects of the development of its productive forces on the basis of the improvement of the forms of the integration of science and production. Here it will be impossible, of course, to do without scientific studies of many theoretical aspects for the substantiation of the regional scientific policy for the purpose of seeking new forms of the management and planning of the "science--production" cycle in each specific region.

Thus, summarizing everything said above, let us note that there are still a number of significant unsolved problems in the management of scientific and technical progress on the regional level. It is necessary to seek new forms of the integration of science with production, to improve them, to develop them, and to use them creatively as applied to local conditions. Precisely such an approach gives the best results, since it makes it possible to implement scientific ideas much more actively in practice at large. This complex process involves the reevaluation of the established rules and habits and the development of new skills of management and a new attitude toward the problems being solved and the results being achieved. The work in this direction is, undoubtedly, an important condition of the increase of the efficiency of social production and the accomplishment of the historical task of the fundamental combination of the achievements of scientific and technical progress with the advantages of socialism.

7807
CSO: 1814/169

AWARDS AND PRIZES

COMPETITION FOR PRIZES OF LATVIAN ACADEMY OF SCIENCES

Riga IZVESTIYA AKADEMII NAUK LATVIYSKOY SSR in Russian No 2, Feb 86 pp 136-137

[Unattributed article: "The Prizes of the Latvian SSR Academy of Sciences. On the Competitions for Prizes Named After Outstanding Scientists, Which Are Being Held by the Latvian SSR Academy of Sciences in 1986-1987"]

[Text] The Latvian SSR Academy of Sciences announces the competitions for the following prizes named after outstanding scientists (in the amount of 1,000 rubles each), which are awarded once every 2 years, on a memorable date which is connected with the life and activity of the scientist, by whose name the prize is called.

1. The Ya. Sudrabkaln Prize--for the best work in the area of art criticism. The deadline for the submitting of works is 20 February 1986.

2. The F. Deglav Prize--for the best work in the area of the economic sciences. The deadline for the submitting of works is 25 February 1986.

3. The Ya. Zutis Prize--for the best work in the area of the historical sciences. The deadline for the submitting of works is 15 May 1986.

4. The A. Kirkhenshteyn Prize--for the best work in the area of the biological sciences. The deadline for the submitting of works is 20 June 1986.

5. The A. Upit Prize--for the best work in the area of the theory and history of literature. The deadline for the submitting of works is 5 September 1986 and 10 September 1987.

6. The F. Tsander Prize--for the best work in the area of the technical sciences. The deadline for the submitting of works is 20 May 1987.

7. The Ya. Endzelin Prize--for the best work in the area of Latvian linguistics. The deadline for the submitting of works is 5 November 1987.

8. The M. Keldysh Prize--for the best work in the area of the physical mathematical sciences. The deadline for the submitting of works is 10 November 1987.

9. The G. Vanag Prize--for the best work in the area of the chemical sciences. The deadline for the submitting of works is 10 December 1987.

The General Provisions

For the purpose of giving incentives to scientists of the republic for outstanding works, scientific discoveries, and inventions, which are of great importance for science and practice, the Latvian SSR Academy of Sciences on the basis of the results of the competitions awards the prizes named after outstanding scientists.

The prizes are awarded for the individual best scientific works, discoveries, and inventions, as well as for series of scientific works on a single theme. Only individual people can personally participate in the competitions for the prizes. In case of the nomination of collective works for a prize only the chief author is represented.

Scientists of the Latvian SSR can participate in the competitions for the prizes named after outstanding scientists, which are awarded by the Latvian SSR Academy of Sciences. Exceptions are permitted for the authors living outside the republic of scientific works which are of outstanding importance directly for the Latvian SSR. The prizes in the area of the social sciences and humanities, as a rule, are awarded for works which are connected with themes of the republic.

The right to nominate candidates for the prizes is granted to:

a) academicians and corresponding members of the Latvian SSR Academy of Sciences;

b) councils of scientific institutions and higher educational institutions of the republic;

c) scientific and scientific and technical societies of the republic;

d) scientific councils of the Latvian SSR Academy of Sciences and other departments of the republic.

When nominating a candidate for a prize it is necessary to submit to the Presidium of the Latvian SSR Academy of Sciences (226524 GSP Riga, Ulitsa Turgeneva, 19) with the inscription "For the Prize Named After..." the following documents:

a) the work (series of works) or a copy of it, which is being submitted, in duplicate;

b) the justification of the council or member of the academy, which includes a scientific description of the work and its importance for the development of science and the national economy;

c) information on the author (surname, name, patronymic, date of birth, academic degree and title, a list of basic scientific works, discoveries, or inventions, place of work and held position, work and home addresses and telephone numbers).

Works, which have been awarded the Lenin Prize, the USSR State Prize, the State Prize of the Latvian SSR (other union republics), medals or prizes of the USSR Academy of Sciences, the academies of sciences of the union republics, and sectorial academies, are not accepted for the prizes named after outstanding scientists.

A prize cannot be awarded again to the same scientist any earlier than after 10 years.

The Latvian SSR Academy of Sciences gives assistance to the scientists, who have been awarded the prizes, in the publication of the works, for which the prizes have been awarded, and grants them the right to note in the heading "awarded the prize named after... of the Latvian SSR Academy of Sciences for...."

The certificates on the awarding of the prizes are presented to the people, to whom they have been awarded, at the annual session of the General Assembly of the Latvian SSR Academy of Sciences.

The scientific works, which have been awarded the prizes, are turned over to the Main Library of the Latvian SSR Academy of Sciences for storage.

Telephone inquires at 223931.

7807
CSO: 1814/174

AWARDS AND PRIZES

NOMINATIONS FOR USSR STATE PRIZES FOR LABOR ACHIEVEMENTS

Moscow IZVESTIYA in Russian 1 May 86 p 4

[Unattributed article: "From the Presidiums of the Committee for Lenin Prizes and USSR State Prizes in Science and Technology Attached to the USSR Council of Ministers and the All-Union Central Council of Trade Unions"]

[Text] The Presidiums of the Committee for Lenin Prizes and USSR State Prizes in Science and Technology attached to the USSR Council of Ministers and the All-Union Central Council of Trade Unions report that the following candidates, who are leaders of the All-Union Socialist Competition, have been allowed to enter the competition for the 1986 USSR State Prizes for outstanding achievements in labor:

1. N.P. Vasilyev, V.P. Povolotskiy, A.I. Rastyapin, Ye.S. Ratiy, V.N. Varnakov, A.V. Zotov, N.N. Knyazeva, K. Kalykov, K.M. Kozin, P.K. Trishin, V.I. Usova--for outstanding achievements in labor and a large personal contribution to the increase of the energy potential on the basis of the introduction of new equipment.

Submitted by the Central Committee of Heavy Machine Building Workers Union, the Central Committee of the Electric Power Station and Electrical Industry Workers Union, the Ministry of the Electrical Equipment Industry, the Ministry of Power Machine Building, the USSR Ministry of Power and Electrification.

2. V.V. Gustov, A. Kadimova, L.N. Furshtatov, V.S. Kireyev, A.F. Latypov, Yu.G. Gausknekht, N.P. Berezhnaya, V.A. Bondar, V.A. Katanayev, A.A. Yemelyanenko, V.N. Mozharov, Ye.Zh. Rochev--for outstanding achievements in labor and a large personal contribution to the increase of petroleum and gas production.

Submitted by the Central Committee of the Petroleum and Gas Industry Workers Union, the Ministry of the Gas Industry, the Ministry of the Petroleum Industry, the Ministry of Construction of Petroleum and Gas Industry Enterprises.

3. N.A. Vovchenko, V.N. Zavedeyev, A.I. Kozhenyakin, A.P. Kozlov, G.V. Kryukov, I.F. Manekin, A.B. Martyn, G.B. Pechenkin, V.A. Plyuvaka, Ye.A.

Protsenko, V.F. Tereshonok, Yu.S. Shchitov--for outstanding achievements in labor and a large personal contribution to the increase of coal production.

Submitted by the Central Committee of the Coal Industry Workers Union and the USSR Ministry of the Coal Industry.

4. V.M. Kolesnikov, D.I. Kravets, T.A. Loginova, N.F. Nikulskiy, V.N. Polion, A.A. Sergeyev, V.I. Stadnikov, L.L. Alekseyeva, A.N. Druzhkova, L.G. Pirogov, B.N. Semenov, A.A. Yarovoy--for outstanding achievements in labor and a large personal contribution to the intensification of metallurgical production.

Submitted by the Central Committee of the Metallurgical Industry Workers Union, the USSR Ministry of Nonferrous Metallurgy, the USSR Ministry of Ferrous Metallurgy.

5. S.N. Bondarchuk, V.M. Vaganov, V.A. Krivchenko, G.V. Sverkunov, P.M. Yefanova, I.I. Nazarenko, M.A. Samarina, M.N. Zemlyanova, V.N. Shulga, L.I. Yefremova, Ye.A. Ignatov, T.P. Starikova--for outstanding achievements in labor and a large personal contribution to the improvement of the use of timber raw material resources.

Submitted by the Central Committee of the Timber, Paper, and Woodworking Industry Workers Union, the USSR Ministry of the Timber, Pulp and Paper, and Wood Processing Industry, the USSR State Committee for Forestry.

6. L.V. Buzulutskiy, V.I. Grushevskiy, A.I. Karandashova, E.Z. Mavletshina, Ye.V. Mironov, V.P. Petrov, A.M. Barkhatov, I.Z. Kotorobay, Yu. Krogertas, V.M. Karitonova, G.P. Pylkova, A.V. Iovik--for outstanding achievements in labor and a large personal contribution to the retooling of production.

Submitted by the Central Committee of the Automobile, Tractor, and Agricultural Machine Building Workers Union, the Ministry of Machine Building for Animal Husbandry and Fodder Production, the Ministry of Tractor and Agricultural Machine Building.

7. A.G. Bovzdarenko, N.K. Goydina, V.V. Zhuravlev, A.V. Skudar, V.I. Grigoryev, T.A. Petrova, L.V. Suntsov, V.A. Kolosov, B.Yu. Aleksandrov, S.P. Pushkar, L.A. Lebedeva, S.V. Petrash--for outstanding achievements in labor and a large personal contribution to the increase of the reliability and technical level of the machines and devices being produced.

Submitted by the Central Committee of the Heavy Machine Building Workers Union, the Central Committee of the Shipbuilding Industry Workers Union, the Ministry of the Shipbuilding Industry, the Ministry of Construction, Road, and Municipal Machine Building, the Ministry of Heavy and Transport Machine Building.

8. A.A. Vlasov, R.D. Oshchepkova, N.M. Shishkin, P.Ye. Goncharuk, V.P. Kaprova, N.N. Maltsev, N.A. Prokopova, L.I. Ustinov, N.N. Tikhonov, T.N. Prokop, L.M. Selivestrova--for outstanding achievements in labor and a large personal contribution to the increase of the reliability and quality of the production equipment being produced.

Submitted by the Central Committee of the Machine Building and Instrument Making Workers Union, the Ministry of the Machine Tool and Tool Building Industry, the Ministry of Instrument Making, Automation Equipment, and Control Systems.

9. R.V. Milashevskiy, V.S. Ilin, S.N. Chaplygin, V.I. Kolesnik, L.A. Savenene, A.Ye. Kharlamova, N.N. Istomina, V.F. Kachulis, A.I. Chepurnova, A.N. Kolesov, N.Ya. Mikulishina, Yu.N. Prokhorov--for outstanding achievements in labor and a large personal contribution to the increase of the quality and reliability of the communications equipment and household appliances being produced.

Submitted by the Central Committee of the Machine Building and Instrument Making Workers Union, the Central Committee of the Radio and Electronics Industry Workers Union, the Ministry of the Communications Equipment Industry, the Ministry of the Electronics Industry, the Ministry of the Radio Industry, the Ministry of Machine Building for Light and Food Industry and Household Appliances.

10. L.N. Poluektova, O.M. Larionov, P.S. Mitryashkina, A.F. Sapunova, V.I. Usoltsev, K.A. Yeremeyev, B.N. Linyuchev, N.S. Kislitsyn, N.I. Soletskaya, A.I. Pityunova, L.I. Starovoytova, S.A. Khudyakov--for outstanding achievements in labor and a large personal contribution to the increase of the efficiency of the operation of equipment and the improvement of production technology.

Submitted by the Central Committee of the Machine Building and Instrument Making Workers Union, the Central Committee of the Heavy Machine Building Workers Union, the Central Committee of the Chemical and Petrochemical Industry Workers Union, the Ministry of Instrument Making, Automation Equipment and Control Systems, the Ministry of Chemical and Petroleum Machine Building, the Ministry of the Chemical Industry.

11. V.F. Titov, P.Ya. Tyrykin, V.A. Blinnikova, A.F. Poskochin, M.G. Bardakov, V.K. Goncharov, N.V. Vasilenko, G.V. Kogal, V.V. Kandala, B.N. Chernenko, L.G. Dekhtyar, B.A. Sproge--for outstanding achievements in labor and a large personal contribution to the early assimilation of new equipment and the improvement of the organization of labor.

Submitted by the Central Committee of the Geological Survey Workers Union, the Central Committee of the Construction and Building Materials Industry Workers Union, the Central Committee of the Chemical and Petrochemical Industry Workers Union, the Ministry of the Medical and Microbiological Industry, the Ministry of Mineral Fertilizer Production, the USSR Ministry of Geology, the USSR Ministry of the Petroleum Refining and Petrochemical Industry, the USSR Ministry of Construction.

12. V.I. Bokhenchuk, O.S. Zhirnov, V.V. Kovrov, M.F. Kapusto, K.A. Makarov, E.V. Kachurin, V. Ya. Starukh, V.K. Krylov, V.N. Rynin, V.V. Orlov, V.F. Smeshko, I.D. Stryukov--for outstanding achievements in labor and a large

personal contribution to the increase of the quality of the repair of equipment and machinery.

Submitted by the Central Committee of the Aviation Industry Workers Union, the Central Committee of the Motor Transport and Highway Workers Union, the Central Committee of the Geological Survey Workers Union, the Central Committee of the Machine Building and Instrument Making Workers Union, the Central Committee of the Maritime and River Fleet Workers Union, the Central Committee of the Chemical and Petrochemical Industry Workers Union, the Ministry of Civil Aviation, the Ministry of the Maritime Fleet, the Ministry of Instrument Making, Automation Equipment, and Control Systems, the Ministry of the Chemical Industry, the USSR Ministry of Geology, the RSFSR Ministry of Motor Transport.

13. D.P. Rogacheva, N.N. Shcherbakova, S.I. Akishina, N.D. Baraboshkin, L.A. Sukhoroslov, Ye.V. Pozharova, Ye.A. Luneva, I.S. Masyukevich, N.U. Dzhabrailova, M.A. Tyurina, Ch. Kuvatova, N.K. Sofronova--for outstanding achievements in labor and a large personal contribution to the increase of the production of high-quality consumer goods.

Submitted by the Central Committee of the Textile and Light Industry Workers Union and the USSR Ministry of Light Industry.

14. Ye.Ya. Gordyuk, A.G. Koval, I.I. Uzhdavinite, M.K. Morozov, L.L. Kuranova, A.K. Kovalenko, V.S. Chirkov, Ye.L. Shatokhina, L.A. Polyanskiy, N.F. Merkulov, S.P. Zhigas, T.Ye. Kharchenko--for outstanding achievements in labor and a large personal contribution to the increase of the quality of consumer service.

Submitted by the Central Committee of the State Trade and Consumer Cooperative Workers Union, the Central Committee of the Cultural Workers Union, the Central Committee of the Local Industry and Municipal Services Workers Union, the Central Committee of the Agroindustrial Complex Workers Union, the USSR Ministry of Trade, the USSR Ministry of Grain Products, the USSR State Committee for Publishing Houses, Printing Plants, and the Book Trade, the Central Union of Consumers' Cooperatives, the RSFSR Ministry of Consumer Services, the Ukrainian SSR Ministry of Consumer Services, the Ukrainian SSR Ministry of Local Industry, the Belorussian SSR Ministry of Housing and Municipal Services, the Belorussian SSR Ministry of Local Industry, the Lithuanian SSR Ministry of Municipal Services.

15. A.F. Dolobanko, G.P. Zhiryakov, N.N. Kovalenko, V.S. Mitin, E.L. Navtikov, A.I. Nesmin, V.G. Nikolayeva, N.M. Plokhikh, A.V. Potapova, V.A. Saar, V.P. Turutin, S.Ye. Shiropayev--for outstanding achievements in labor and a large personal contribution to the increase of the quality of construction operations and the early placement into operation of production and sociocultural facilities.

Submitted by the Central Committee of the Construction and Building Materials Industry Workers Union, the Central Committee of the Rail Transport and Transport Construction Workers Union, the USSR Ministry of Construction of Heavy Industry Enterprises, the USSR Ministry of Industry Construction, the

USSR Ministry of Construction, the USSR Ministry of Installation and Special Construction Work, the Ministry of Transport Construction, the Main Administration of Construction of the Moscow Oblast Soviet Executive Committee, the Main Administration of Installation and Special Construction Work of the Moscow City Soviet Executive Committee, the Main Administration of Hosuing and Civil Construction of the Kiev City Soviet Executive Committee, the Main Administration for Construction in Tashkent City.

16. P.A. Beltsov, A.V. Yerofeyev, N.A. Kucheryavykh, G.A. Ladutko, N.A. Maksimov, M.A. Nikolayev, F.G. Tupitsa, V.I. Romanenko, V.V. Rusyayev, N.G. Rybakov, V.Ye. Sklyuyev, V.D. Fedorenko--for outstanding achievements in labor and a large personal contribution to the improvement of the organization of labor in construction and the production of construction materials.

Submitted by the Central Committee of the Construction and Building Materials Industry Workers Union, the Ministry of Construction in the Far East and Transbaykal Regions, the USSR Ministry of Industrial Construction, the USSR Ministry of the Construction Materials Industry, the USSR Ministry of Construction of Heavy Industry Enterprises, the USSR Ministry of Construction, the Main Administration of the Construction Materials and Construction Assembly Industry of the Moscow City Soviet Executive Committee.

17. G.M. Grinberg, G.P. Vereshchagin, D.K. Idayatov, A. Kasymov, N.G. Rebenok, Z.I. Smirnova, L.M. Yaskov, G.A. Gasanov, N.B. Kazazyan, L.I. Pivovarchik, Ye.V. Rysev, F. Uralov--for outstanding achievements in labor and a large personal contribution to the search for and use of internal reserves of construction.

Submitted by the Central Committee of the Agroindustrial Complex Workers Union, the Central Committee of the Communications Workers Union, the Central Committee of the Construction and Building Materials Industry Workers Union, the Ministry of Construction in the Far East and Transbaykal Regions, the USSR Ministry of Land Reclamation and Water Resources, the USSR Ministry of Installation and Special Construction Work, the USSR Ministry of Industrial Construction, the USSR Ministry of Communications, the USSR Ministry of Construction, the USSR Ministry of Construction of Heavy Industry Enterprises.

18. N.I. Deykun, A.M. Demchuk, B.A. Zinchuk, A.Ye. Kozlov, A.P. Semiryazhko, L.A. Staritsyna, V.G. Subbotin, V.A. Sokov, V.N. Pozdeyev, T.V. Astapova, M.N, Petrova--for outstanding achievements in labor and a large personal contribution to the increase of the efficiency of the operation of rail and air transport.

Submitted by the Central Committee of the Aviation Industry Workers Union, the Central Committee of the Rail Transport and Transport Construction Workers Union, the Ministry of Civil Aviation, the Ministry of Railways, the USSR State Committee for Hydrometeorology and Environmental Control.

19. Ye.I. Zakharova, N.P. Zikranov, A.V. Likhachev, A.A. Serebryanskiy, L.M. Talivanov, N.A. Khardikov, M.M. Yakimenko, Ye.P. Razmyatov, A.D. Danukalova, V.T. Zhizhelev, P.M. Larionov, A.I. Kuznetsova--for outstanding achievements

in labor and a large personal contribution to the increase of the efficiency of the operation of motor and water transport.

Submitted by the Central Committee of the Motor Transport and Highway Workers Union, the Central Committee of the Maritime and River Fleet Workers Union, the Ministry of the Maritime Fleet, the Ministry of Transport Construction, the RSFSR Ministry of Motor Transport, the RSFSR Ministry of Highways, the RSFSR Ministry of the River Fleet, the Ukrainian SSR Ministry of Motor Transport, the Kazakh SSR Ministry of Highways, the Passenger Transport Administration of the Moscow City Soviet Executive Committee.

20. M.Sh. Shakiryanov, A.N. Zimulko, V.A. Batrachenko, I.G. Rublikov, G.I. Stafeyeva, V.L. Shiba, N.I. Pilipenko, P.K. Baranetskiy, L.N. Derecha, T. Turdykulov, G.I. Moruz, D. Karimov--for outstanding achievements in labor, creative initiative and activity, and the obtaining of large and stable harvests of grain crops on the basis of the extensive introduction of advanced technologies.

Submitted by the Central Committee of the Agroindustrial Complex Workers Union and the USSR State Agroindustrial Committee.

21. A.Ya. Vasilenko, N.D. Kobzar, V.I. Shkirya, N.M. Medved, L.N. Tatchuk, S.N. Semeshchenko, A. Pardabayev, S. Khudaykulov, A.G. Kerimov, A.B. Avetisyan, M. Ashirov--for outstanding achievements in labor, the assurance of the steady increase of the production of sugar beets, cotton, flax, vegetable and other agricultural crops, the increase of labor productivity, and the decrease of the product cost on the basis of the introduction of industrial technologies.

Submitted by the Central Committee of the Agroindustrial Complex Workers Union and the USSR State Agroindustrial Committee.

22. F.F. Bott, A.K. Lavrentyev, A.A. Mokshin, N.F. Lokosov, A.V. Sokolov, V.M. Sumin, S.P. Sutyagin, G.A. Fedosevich, V.V. Ratkovich, K.K. Kenesbayeva, N.A. Balayev, A.Yu. Lukht--for outstanding achievements in labor, the obtaining of high and stable yields of fodder crops, and the highly efficient use of agricultural equipment.

Submitted by the Central Committee of the Agroindustrial Complex Workers Union and the USSR State Agroindustrial Committee.

213. S.A. Revazova, V.A. Lyapin, A.A. Pobochina, G.I. Karpunina, Ye.G. Filatova, M.I. Savchuk, Sh. Aralov, B. Ibrayev, K.B. Karchaidze, A.K. Bayvadene, V.Ye. Denisova, M. Kylzhyrov--for outstanding achievements in labor and the increase of the production of high-quality products of animal husbandry on the basis of the efficient use of the achievements of science, advanced practical experience, the collective contract, and other advanced forms of the organization of labor.

Submitted by the Central Committee of the Agroindustrial Complex Workers Union and the USSR State Agroindustrial Committee.

24. I.V. Perepelitsa, P.V. Tkachenko, A.Kh. Khazhirokov, L.K. Krapivin, U.M. Stepanenko, V.A. Antropova, A.N. Kalmykov, A.I. Slobodchikov, N.I. But, V.Sh. Kharebava, G.P. Rasmanis--for outstanding achievements in labor and a large personal contribution to the increase of production efficiency and work quality.

Submitted by the Central Committee of the Agroindustrial Complex Workers Union, the Central Committee of the Fish Industry Workers Union, the USSR State Agroindustrial Committee, the USSR Ministry of the Fish Industry.

25. R.S. Islamov, A.M. Tsvetkova, M.P. Yakovlev, Ye.I. Sviderskiy, I.V. Antonenko, A. Melikuziyev, N.K. Kabanova, A.N. Fattayev, R.T. Rustamov, O.A. Gramauskene, S.Ye. Osadchuk, A.B. Bektursunova--for outstanding achievements in labor and a large personal contribution to the boosting of the production and the increase of the quality of the processing of agricultural products.

Submitted by the Central Committee of the Agroindustrial Complex Workers Union and the USSR State Agroindustrial Committee.

All opinions, materials of the public discussion, and remarks should be sent to the committee by 15 August of this year at the address: 125047, Moscow, 3-ya Tverskaya-Yamskaya ulitsa, dom No 46. Telephone numbers: 250-38-08; 250-19-47; 250-37-14.

7807
CSO: 1814/179

AWARDS AND PRIZES

GEORGIAN STATE PRIZES IN SCIENCE, TECHNOLOGY FOR 1985

Tbilisi ZARYA VOSTOKA in Russian 25 Feb 86 pp 1, 4

[Article under the rubric "In the Georgian CP Central Committee and the Georgian SSR Council of Ministers": "On the Awarding of the 1986 Georgian SSR State Prizes in Science and Technology"]

[Text] The Georgian CP Central Committee and the Georgian SSR Council of Ministers, having considered the representation of the Committee for Georgian SSR State Prizes in Science and Technology attached to the Georgian SSR Council of Ministers, resolve:

To award the 1986 Georgian SSR State Prises to:

In Science:

1. Nodar Sardionovich Amaglobeli--doctor of physical mathematical sciences, professor, corresponding member of the Georgian SSR Academy of Sciences, rector of Tbilisi State University (director); Tamaz Sergeyevich Grigalashvili--candidate of physical mathematical sciences, chief of a sector of the Serpukhov Scientific Experimental Department of the Joint Institute for Nuclear Research; Vasiliy Pavlovich Dzhordzhadze--candidate of physical mathematical sciences, junior scientific associate of the Scientific Research Institute of High Energy Physics of Tbilisi State University; Vladimir Dmitriyevich Kekelidze--candidate of physical mathematical sciences, senior scientific associate of the same institute; Mikhail Fedorovich Likhachev--candidate of physical mathematical sciences, chief of a sector of the scientific experimental electronics department of the Joint Institute for Nuclear Research; Givi Ivanovich Nikobadze--senior scientific associate of the Scientific Research Institute of High Energy Physics of Tbilisi State University

--for the series of works "The Detection and Study of a Baryon State With Hidden Strangeness," which were published in 1980-1984.

2. Leonard Leonardovich Dekaprelevich--director (posthumously); Akakiy Arkhipovich Abkhazava--candidate of agricultural sciences, senior scientific associate, honored agronomist of the Georgian SSR, deputy director of the Scientific Research Institute of Agriculture imeni Yu.N. Lomouri; Makvala

Skhivovna Gviniashvili--junior scientific associate of the Mtskheta Selection Station of the same institute; Otar Antonovich Liparteliani--doctor of agricultural sciences, senior scientific associate, chief of the laboratory of the selection and seed growing of corn of the Mtskheta Selection Station of the same institute; Sergey Gedevanovich Tedoradze--doctor of biological sciences, senior scientific associate, deputy director of the same institute; Vasiliy Tarasovich Chkhikvadze--candidate of agricultural sciences, senior scientific associate, former chief of the laboratory of the selection and seed growing of corn of the Mtsketa Selection Stations of the same institute; Anton Varlamovich Yakobashvili--candidate of agricultural sciences, senior scientific associate, director of the Mtskheta Selection Station of the same institute

--for the work "The Development and Introduction of the First Georgian Simple Interlinear Corn Hybrid 'Kartuli 9 MV'," which was carried out in 1962-1985.

In Technology:

Grigoriy Davidovich Chelidze--candidate of technical sciences, docent of the Chair "Parts of Machines and Materials Handling Machinery" of the Georgian Polytechnical Institute imeni V.I. Lenin (director); Nodar Grigoryevich Abuladze--candidate of technical sciences, docent of the Chair of Engineering Graphics of the same institute; Tengiz Davidovich Dolidze--candidate of technical sciences, docent of the Chair of Metal Cutting Machine Tools of the same institute; Oleg Yuryevich Yefimov--deputy chief of a department of the Tbilisi Aircraft Production Association imeni Dimitrov; Vladimir Fedorovich Laptev--chief engineer of the aviation industry; David Davidovich Tavkhelidze--candidate of technical sciences, docent of the Chair "Parts of Machines and Materials Handling Machinery" of the Georgian Polytechnical Institute imeni V.I. Lenin; Avtandil Grigoryevich Khoperiya--deputy chief engineer of the Tbilisi Aircraft Production Association imeni Dimitrov

for the work "The Development and Introduction of an Adjustable Robotized Line for the Machining of Cylinder Parts," which was carried out in 1979-1983.

[Signed] Secretary of the Georgian CP Central Committee D. Patiashvili

Chairman of the Georgian SSR Council of Ministers D. Kartvelishvili

7807
CSO: 1814/179

AWARDS AND PRIZES

NOMINATIONS FOR LITHUANIAN STATE PRIZES IN SCIENCE, TECHNOLOGY

Vilnius SOVETSKAYA LITVA in Russian 16 Apr 86 p 3

[Article under the rubric "In the Committee for Lithuanian SSR State Prizes in Science and Technology Attached to the Lithuanian SSR Council of Ministers": "A List of the Works and Their Authors, Which Have Been Submitted for the Awarding of Prizes in 1986"]

[Text] Exact Sciences

1. The series of works "High Frequency Plasma and Ferroelectric Phenomena in Crystals" (1973-1985)--R. Brazis, Y. Grigas, R.-A. Tolutis.

2. The series of works "Covalent Nucleon-Protein Structures and Their Chemical Modeling" (1968-1985)--B. Yuodka.

Technical Sciences

1. The series of works "The Optimization of Main and City Distribution Networks and the Efficient Use of Gaseous Fuel" (1970-1985)--A. Garlyauskas, R.-A. Lyaukonis.

2. "The Development and Introduction of a Mechanized Flow Line of the Low-Waste Production of Dry Mashed Potatoes in the Form of Granules at the Taurage Fruit and Vegetable Combine of the Lithuanian SSR State Agroindustrial Committee" (1979-1982)--Yu. Vidmantas, I. Zabashtanskiy, V. Zaletskiy, P. Ivanauskas, A. Mazur, V. Povilayka, M. Raginya, Y. Tamulis, V. Chereshkyavichyus.

3. "Vibromotors--Theory, Designs, Application" (1977-1985)--R. Bansyavichyus, P. Vasilyev, R. Kurilo, K. Ragulskis, I. Skuchas.

4. "The Development and Introduction of the Plant Technical Management Automation System of Water Supply of Kaunas"--V. Krishchyunas (director of the work), S. Baltrushaytis, R. Vaytkyavichyus, M. Krishchyunas, P. Margyavichyus, K. Mika, V. Pyatrauskas.

5. "The Development, Study, and Introduction of a Set of High Performance Equipment and Designs of Precision Drills for the Drilling of Hard to Machine

Materials" (1975-1985)--Y. Antulis, S. Buynyavichyus, A. Zhvirblis, V. Zhilis, V. Rukshenas, Y. Rutkauskas, Yu. Sirvidis, T. Tukay, E. Yurksha.

Agricultural and Natural Sciences

1. The series of works "Complexes of Soil Invertebrates and Micromycetes and Their Influence on the Fertility and Biological Activity of Soil" (1957-1985)--O. Atlavinite, A. Lugauskas, I. Eytminavichyute.

2. "The Development and Introduction of Effective Methods of Broiler Production in the Lithuanian SSR in 1965-1985"--V. Buyvidas, A.-F. Vayshvila, S. Danyus, G.-M. Daunis, Yu. Katkyavichyus, Yu. Mitskunas, Kh. Pilkauskas, G. Ribinskene.

3. The series of works "The Regularities of Biochemical and Morphological Disorders of Organs and the Peculiarities of Their Development in the Presence of Hypoxia (Experimental Myocardial Infarction)" (1965-1985)--A. Prashkyavichyus (director of the work), A. Vitkus, Yu.-S. Danilyavichyus, P. Dzheya, L. Ivanov, L. Lukoshyavichyus, R.-S. Stropus, A. Toleykis.

4. "The Development of Clinical Kidney Transplanting in the Lithuanian SSR in 1975-1985"--B. Daynis, V. Kleyza, N.-M. Stanaytite, N.-R. Shyashkyalene.

5. Textbooks: "Sistematika nizshikh rasteniy" [The Classification of Lower Plants] (Vilnius, "Mokslas", 1979), "Sistematika vysshikh rasteniy" [The Classification of Higher Plants] (Vilnius, "Mokslas", 1984)--V. Galinis.

Economic Sciences and Humanities

1. "Malaya litovskaya sovetskaya entsiklopediya" [The Small Lithuanian Soviet Encyclopedia], Volumes I-III (Vilnius, 1966-1977), "Litovskaya sovetskaya entsiklopediya" [The Lithuanian Soviet Encyclopedia], Volumes I-XIII (Vilnius, 1976-1984), and a supplementary volume (Vilnius, 1985)--L. Valyus, Y. Zinkus, V. Kvetkauskas, B. Kurkulis, Yu. Matulis, Y. Matsyavichyus, M. Pozharskas, A. Trakimas.

2. "Etimologicheskiy slovar litovskikh gidronimov" [An Etymological Dictionary of Lithuanian Names of Bodies of Water] (Vilnius, "Mokslas", 1981)--A. Vanagas.

3. The series of works "The Improvement of the Accounting of Production and the Calculation of the Product Cost Under the Conditions of Socialist Economic Integration" (1972-1984)--Y. Matskyavichyus.

4. "Works in the Field of the Archeology of the Lithuanian SSR and the Endogenesis of Lithuanians" (1975-1985)--R. Kulikauskene-Volkayte.

5. "Muzyka. Uchebniki dlya I-VIII klassov" [Music. Textbooks for the 1st-8th Grades] (Kaunas, "Shvesa", 1980-1983)--E.-Yu. Balchitis, D. Daugaravichyus, Z.-K. Martsinkyavichyus, V. Surgautayte.

For Outstanding Labor Successes Achieved in Socialist Competition

1. For outstanding achievements in labor and socialist competition, for the increase of the production of agricultural products and the improvement of their quality: P. Batutis--fisherman of the Ishlauzhas Fishery of Prenayskiy Rayon; Z. Ionushas--chief of the Flax Growing Sector of the Upitskiy Experimental Station of Panevezhskiy Rayon; K. Mikuta--leader of a multiple-skill brigade of the Kretingskiy Rayon Construction Organization; I. Raulinaytis--leader of a brigade of electricians of the Kapsukas Combine of Grain Products; I. Sereyka--excavator operator of the Pakruois Reclamation Construction and Installation Administration; P. Silvanavichyus--tractor driver of the Galyunas Kolkhoz of Alitusskiy Rayon; Ya. Stankevich--operator of the mechanized milking of cows of the Vilnius State Stud Farm; A. Yankauskas--herdsman of the Lenino kyalyu Kolkhoz of Skuodasskiy Rayon.

2. For outstanding achievements in labor and in socialist competition, for the increase of labor productivity and production efficiency: V. Darguzhis--milling machine operator and brigade leader of the Panevezhis Plant of Engine-Driven Compressors; S.-K. Dzhyugis--chief engineer of the Kaunas Distribution Cold Storage Warehouse; A. Zhvirblis--leader of a brigade of the Shilute Furniture Combine; A. Zhigyalis--leader of a brigade of the Kaunas House Building Combine; V. Zmeyauskas--machine operator of the Ionava Peat Enterprise; S. Ilinskaya--fur dresser and cutter of the Vilnius Fur Production Assocation imeni Yu. Vitas; A. Lubis--leader of a multiple-skill brigade of instrument control men for the production of powdered milk of the Utena Dairy Combine; D.-Yu. Tsibulskene--press operator of the Kaunas Bitukas Plant of Silica Items.

7807
CSO: 1814/179

ENTERPRISE-VUZ COOPERATION IN INTRODUCTION, STUDENT TRAINING

Moscow EKONOMICHESKAYA GAZETA in Russian No 5, Jan 86 p 6

[Article by Candidate of Technical Sciences G. Kozlov, USSR Inventor (Voronezh): "The Cooperation of Science and Labor"]

[Text] Life urgently requires that higher educational institutions actively promote the acceleration of scientific and technical progress. At present the practice of the conclusion of economic contracts between enterprises and higher educational institutions for the conducting of scientific research for the needs of enterprises is widespread. For their most part such operations conclude with reports or reports with the presentation of laboratory specimens or prototypes and, more rarely, with introduction.

Here is an example of when an enterprise invests much capital, counting on a real result, but gets nothing.

In conformity with the plan of research of the RSFSR Ministry of Higher and Secondary Specialized Education the Voronezh Institute of Construction Engineering starting in 1974 was to have fulfilled a number of assignments on the development and introduction of a plant technical management automation system at the Voronezh Plant of Glazed Pottery Items. The higher educational institution spent the assets completely, but the work did not advanced a step. The work was also not completed after the conclusion of a second contract with additional payment for the unfinished work. In all 271,000 rubles were allocated to the institute for the accomplishment of the important national economic task, while their return is equal to zero.

The need has arisen to properly include the reserves of science of the higher educational institution in the matter. For this, it seems, it is advisable to change over from the practice of concluding economic contracts between enterprises and higher educational institutions to the practice of the combining of jobs by individual scientists or a group of scientists at enterprises for the performance of specific jobs.

In this case the scientists of the higher educational institution are afforded the real opportunity, by mastering the "secrets" of production, to look more broadly at its problems and needs. Given such combining of jobs the enterprise will not pay money "for no special reason." An insignificant

period of time is sufficient in order to evaluate the skills and practical qualities of the scientist of the higher educational institution and to see his enthusiasm and desire to make a real contribution to the acceleration of scientific and technical progress.

On the other hand, the work of the scientist directly at the enterprise also affords great prospects for students, who together with their instructor will be able to participate in research and to master the skills of the future specialty.

At some stage of the performance of the work the need may arise for the longer use of the labor of scientists at the enterprise. Then it would be advisable to grant the enterprise the right to transfer the most necessary number of personnel of the higher educational institution for temporary work. It is desirable to link the remuneration of their labor with the end result which will be obtained from introduction.

Great responsibility for the level of the work being performed is placed on the scientists of the higher educational institution, who work through the combining of jobs at the enterprise. For it is clear that it should not be of the nature of the simple improvement or simplification of any technical devices which already exist. This is also completely within the power of the specialists of the enterprise. Such work should be original, should improve qualitatively the parameters of the existing item or the item being new developed and of the technological process, and should be performed at the level of inventions.

The enterprises, when reporting on the economic impact to their ministries, should, apparently, include in a separate column the information on the impact which the developments of higher educational institutions yielded. At the same time it is also possible to send such information to the higher educational institution.

7807
CSO: 1814/164

GENERAL

SUMMARY OF LATVIAN ACADEMY PRESIDIUM MEETINGS

Riga IZVESTIYA AKADEMII NAUK LATVIYSKOY SSR in Russian No 2, Feb 86 p 116

[Unattributed article: "In the Presidium of the Latvian SSR Academy of Sciences"]

[Text] The Presidium of the Latvian SSR Academy of Sciences

--By Decree No 233 of 17 December 1985 awarded the Honorary Diploma of the Presidium to N.F. Susidko, chief of the Production Engineering Department of the Experimental Plant of the Institute of Organic Synthesis, for the successful fulfillment of the assignments of the 11th Five-Year Plan and active participation in public life.

At the Meeting of 30 December 1985

--Heard the scientific report of Doctor of Medical Sciences A.Ya. Mutseniyetse "The Viral Immunomodulator in the Comprehensive Therapy of Malignant Melanoma of the Skin." The Presidium endorsed and rated highly the scientific research being conducted at the Institute of Microbiology imeni Avgust Kirkhenshteyn under the supervision of A.Ya. Mutseniyetse.

--Heard the report of Academy President B.A. Purin on the measures on the fulfillment of the decisions of the General Assembly of the Latvian SSR Academy of Sciences of 14 November 1985.

--Approved the plan of scientific research work of the Latvian SSR Academy of Sciences in the area of the natural, technical, and social sciences for 1986.

--Approved the plan of the introduction of developments of the Latvian SSR Academy of Sciences for 1986 and the measures on the improvement of the organization of the introduction of the results of basic and applied research.

--Approved by a joint decree with the Party Committee and the United Trade Union Committee of the Academy of Sciences the socialist obligations of the Latvian SSR Academy of Sciences for 1986, which are aimed at the improvement of the further development of research, the increase of the efficiency and quality of scientific research, and the extensive and rapid introduction in practice of the achievements of science.

--By a joint decree with the Presidium of the Latvian Republic Committee of the Education, Higher Schools, and Scientific Institutions Workers Union noted the high indicators, which were achieved in the socialist competition by the collective of the Experimental Plant of Biochemical Compounds of the Institute of Microbiology imeni Avgust Kirkhenshteyn, by the collective of the shop of peptide compounds of the Experimental Plant of the Institute of Organic Synthesis; by A.S. Kravelis, an instrument control woman of the Experimental Plant of the Institute of Organic Synthesis, and M.T. Shkinkis, a fitter of assembly operations of the Experimental Electronic Machine Plant of the Institute of Physics and Power Engineering.

--Awarded the Honorary Diploma of the Presidium to Candidate of Technical Sciences G.G. Gromov, chief of a laboratory of the Institute of Electronics and Computer Technology, for long years of fruitful scientific work and active participation in public life and in connection with his 50th birthday.

At the Meeting of 9 January 1986

--Heard the scientific report of Corresponding Member V.V. Doroshenko "Problems of the Economic Interrelations of Western and Eastern Europe in the 17th and 18th Centuries (According to Riga Materials)." It noted that the scientific research work, which is being performed by V.V. Doroshenko, merits appreciation.

--Heard and made a note of the report of Doctor of Physical Mathematical Sciences L.E. Reyzin on the results of the conducted research on mathematics in the Latvian SSR and the work of the Scientific Council for Mathematics. It endorsed the basic research being conducted in the republic on mathematics in the directions: differential equations and mathematical physics; algebra and logic; mathematical cybernetics and the software of computers and computer systems; probability theory and mathematical statistics.

--Approved the list of basic questions which are planned for discussion at the meetings of the Presidium of the Latvian SSR Academy of Sciences in 1986.

7807
CSO: 1814/174

END